Appendix for test report

1Appendix_A: Effective (Isotropic) Radiated Power Output Data

Part I - Test Results

Test Band	Test Mode	Test Channel	Measured[dBm]	ERP[dBm]	Limit [dBm]	Verdict
WCDMA850	UMTS/TM1	LCH	24.06	19.06	38.5	PASS
		MCH	24.07	19.07	38.5	PASS
		HCH	24.12	19.12	38.5	PASS
Test Band	**Test Mode**	**Test Channel**	**Measured[dBm]**	**EIRP [dBm]**	**Limit [dBm]**	**Verdict**
WCDMA1900	UMTS/TM1	LCH	24.05	23.54	33	PASS
		MCH	23.96	23.45	33	PASS
		HCH	23.93	23.42	33	PASS
WCDMA1700	UMTS/TM1	LCH	23.05	21.72	30	PASS
		MCH	23.04	21.71	30	PASS
		HCH	23.11	21.78	30	PASS

Note1:

a, For getting the ERP (Efficient Radiated Power) or EIRP (Efficient Isotropic Radiated Power) in substitution method, the following formula should be taken to calculate it,

ERP [dBm] = SGP [dBm] - Cable Loss [dB] + Gain [dBd]

EIRP [dBm] = SGP [dBm] - Cable Loss [dB] + Gain [dBi]

b, SGP = Signal Generator Level

Note2:

SET Span = 1.5 * OBW

SET RBW = 1% of the OBW, not to exceed 1MHz

SET VBW >= 3 * RBW

SET Sweep time = auto - couple.

Detector: RMS

2Appendix_B: Peak-to-Average Ratio

Part I - Test Results

Test Band	Test Mode	Test Channel	Measured[dB]	Limit [dB]	Verdict
WCDMA850	UMTS/TM1	LCH	2.86	13	PASS
		MCH	3.11	13	PASS
		HCH	2.89	13	PASS
WCDMA1900	UMTS/TM1	LCH	3.06	13	PASS
		MCH	3.02	13	PASS
		HCH	3.19	13	PASS
WCDMA1700	UMTS/TM1	LCH	2.8	13	PASS
		MCH	2.97	13	PASS
		HCH	2.8	13	PASS

3Appendix_C: Modulation Characteristics

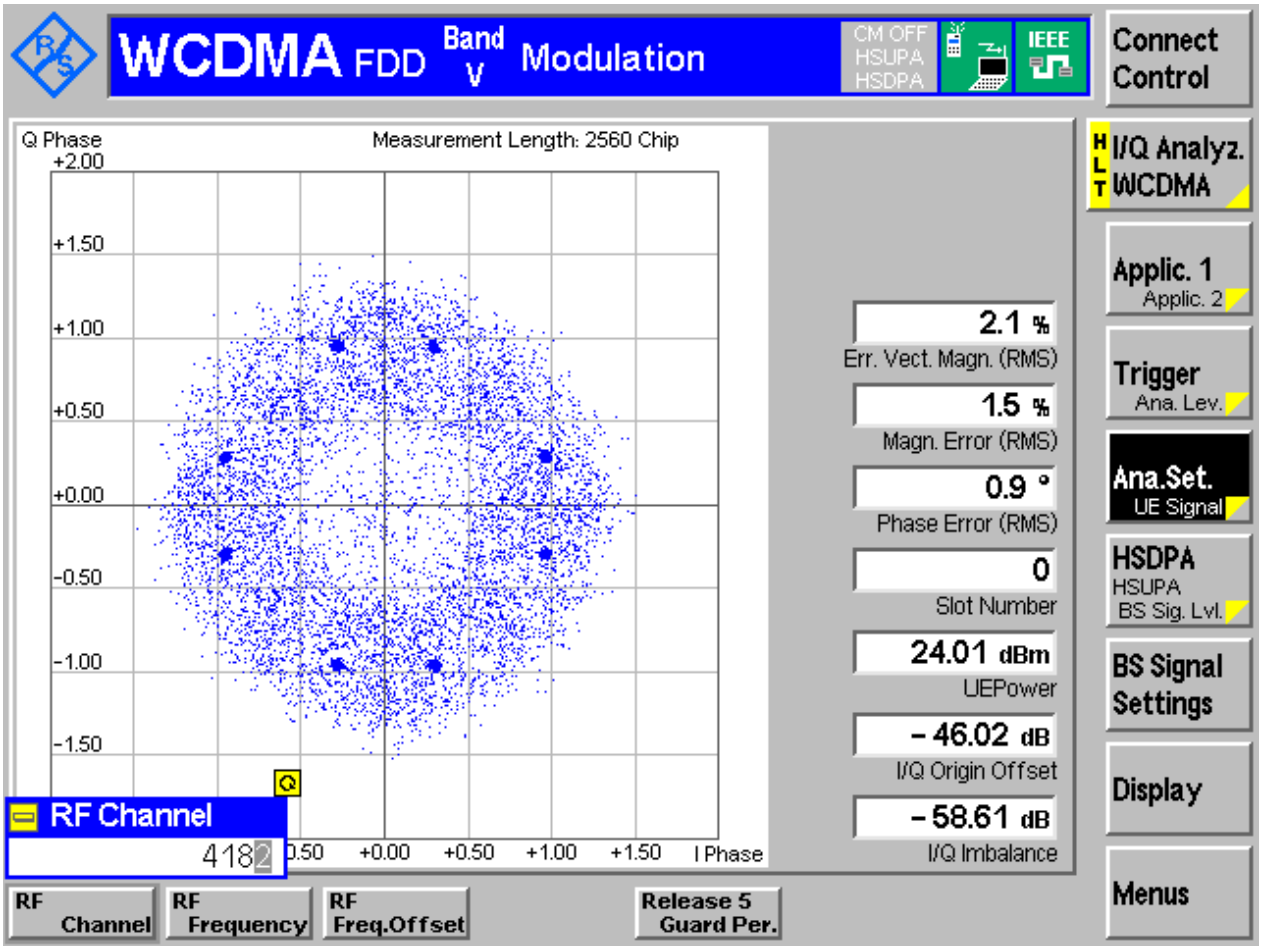
Part I - Test Plots

3.1 For UMTS

3.1.1 Test Band = WCDMA850

3.1.1.1 Test Mode = UMTS/TM1

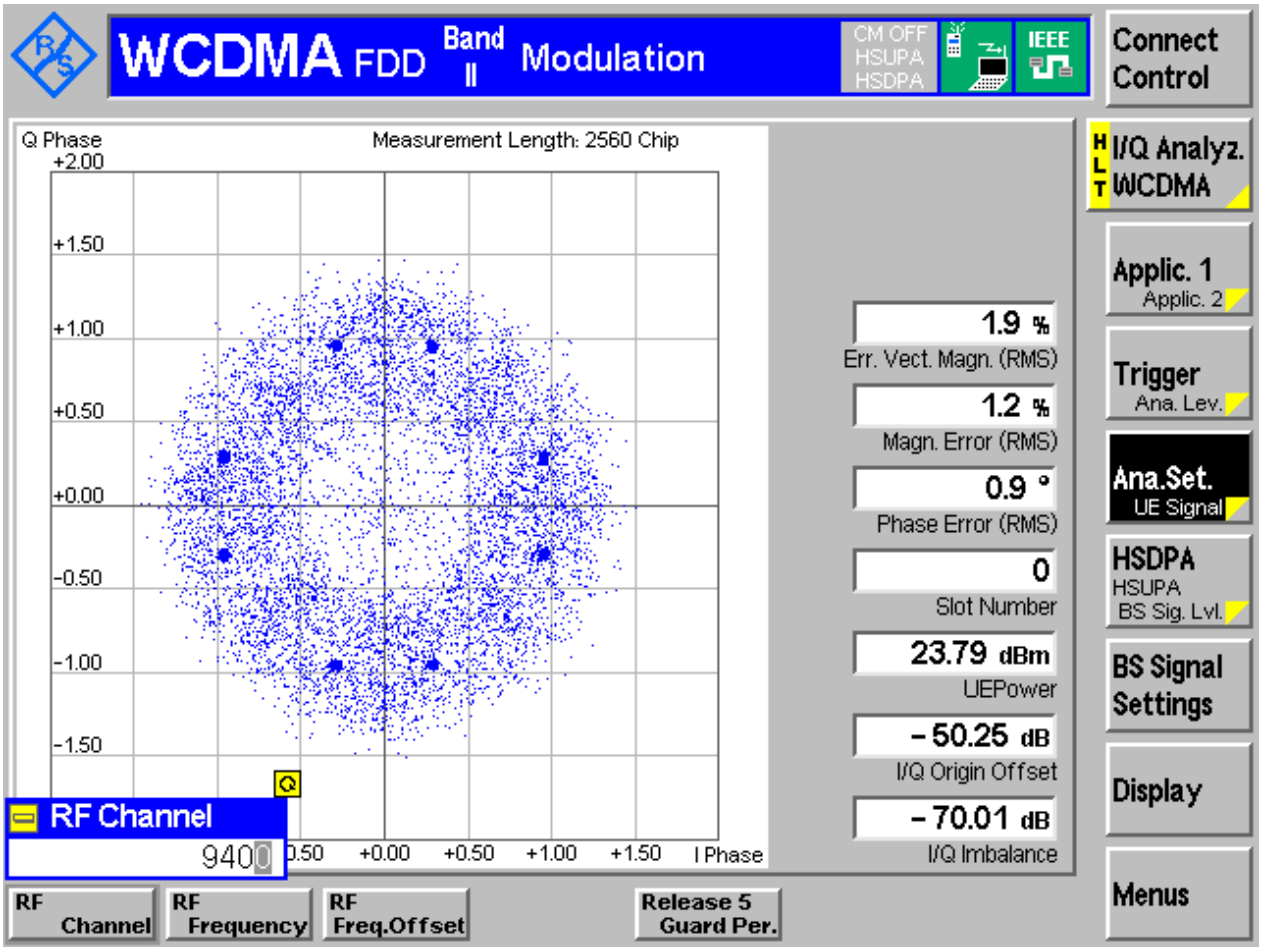
3.1.1.1.1 Test Channel = MCH



3.1.2 Test Band = WCDMA1900

3.1.2.1 Test Mode = UMTS/TM1

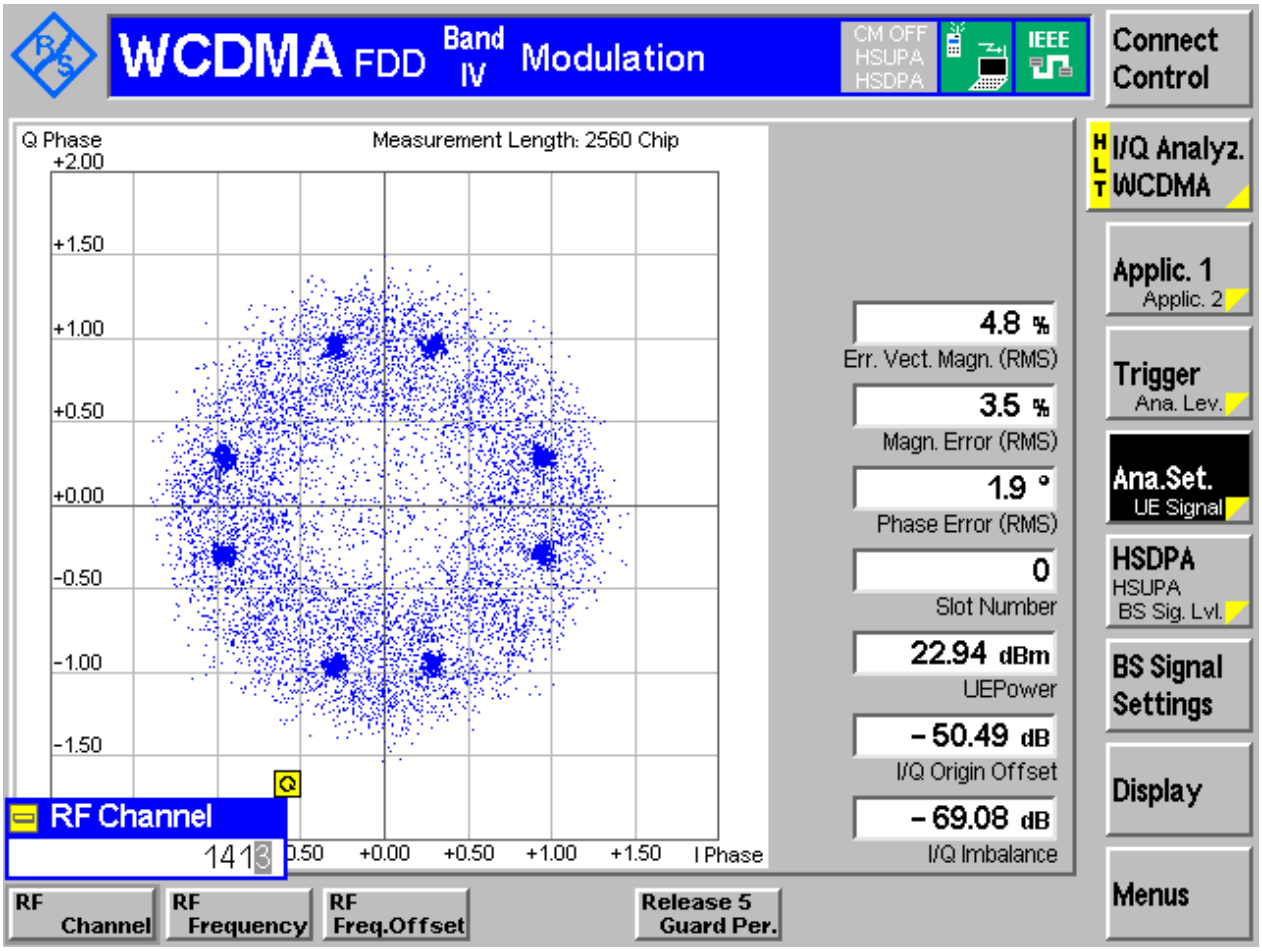
3.1.2.1.1 Test Channel = MCH



3.1.3 Test Band = WCDMA1700

3.1.3.1 Test Mode = UMTS/TM1

3.1.3.1.1 Test Channel = MCH



4Appendix_D: Bandwidth

Part I - Test Results

Test Band	Test Mode	Test Channel	Occupied Bandwidth [MHz]	Emission Bandwidth [MHz]	Verdict
WCDMA850	UMTS/TM1	LCH	4.15	4.72	Pass
		MCH	4.17	4.72	Pass
		HCH	4.16	4.71	Pass
WCDMA1900	UMTS/TM1	LCH	4.17	4.72	Pass
		MCH	4.16	4.70	Pass
		HCH	4.16	4.71	Pass
WCDMA1700	UMTS/TM1	LCH	4.17	4.73	Pass
		MCH	4.18	4.74	Pass
		HCH	4.17	4.72	Pass

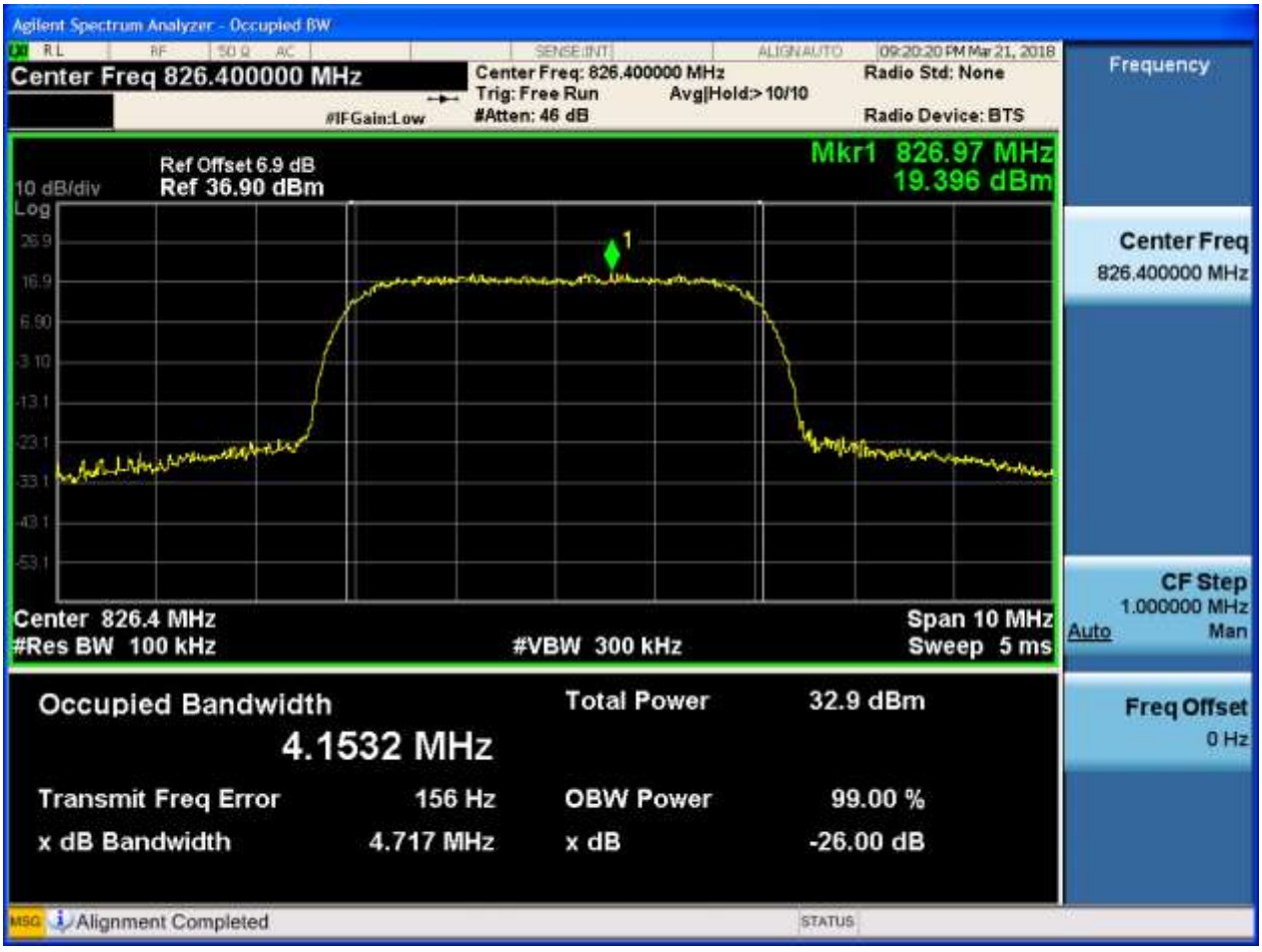
Part II - Test Plots

4.1 For UMTS

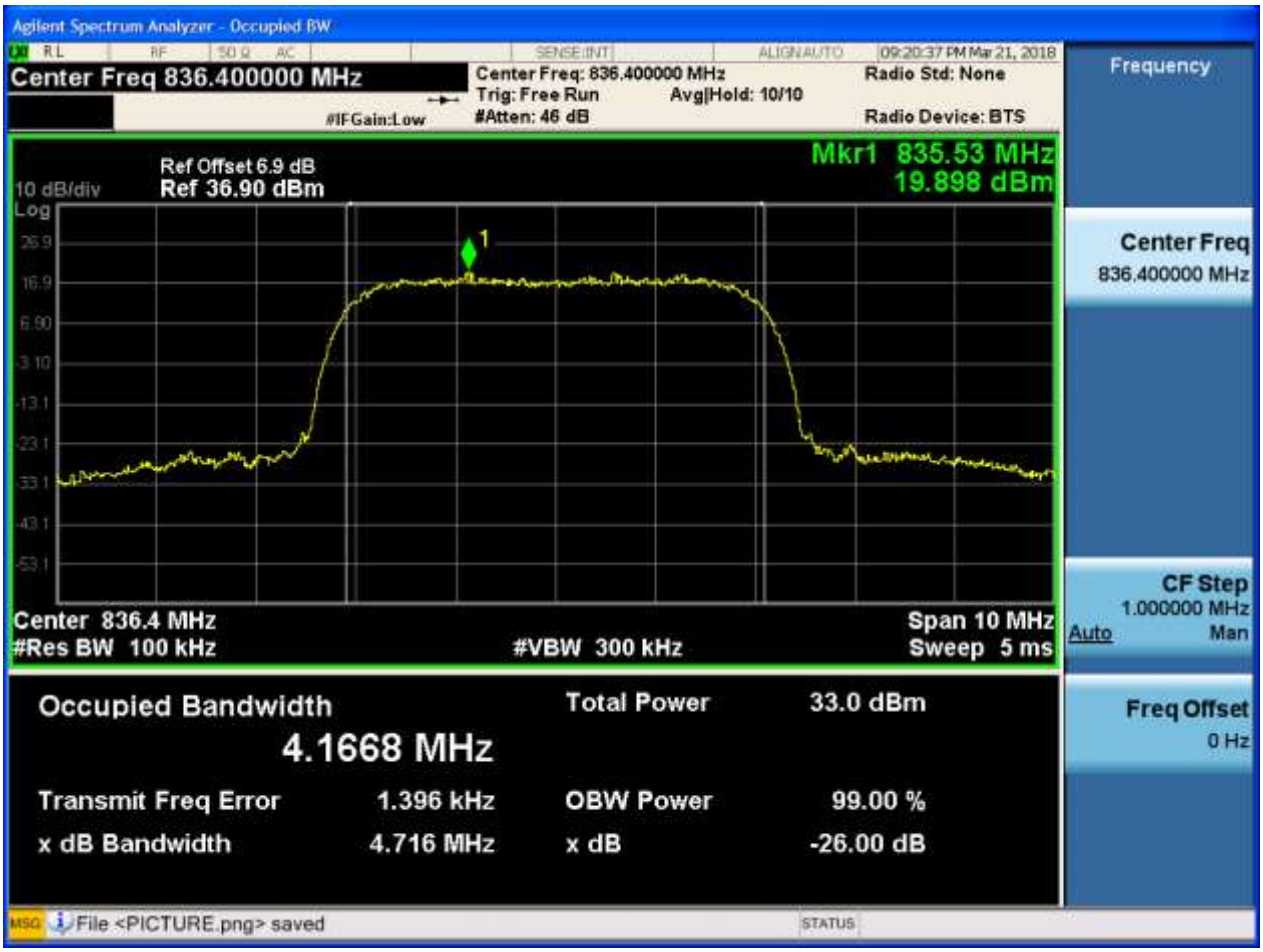
4.1.1 Test Band = WCDMA850

4.1.1.1 Test Mode = UMTS/TM1

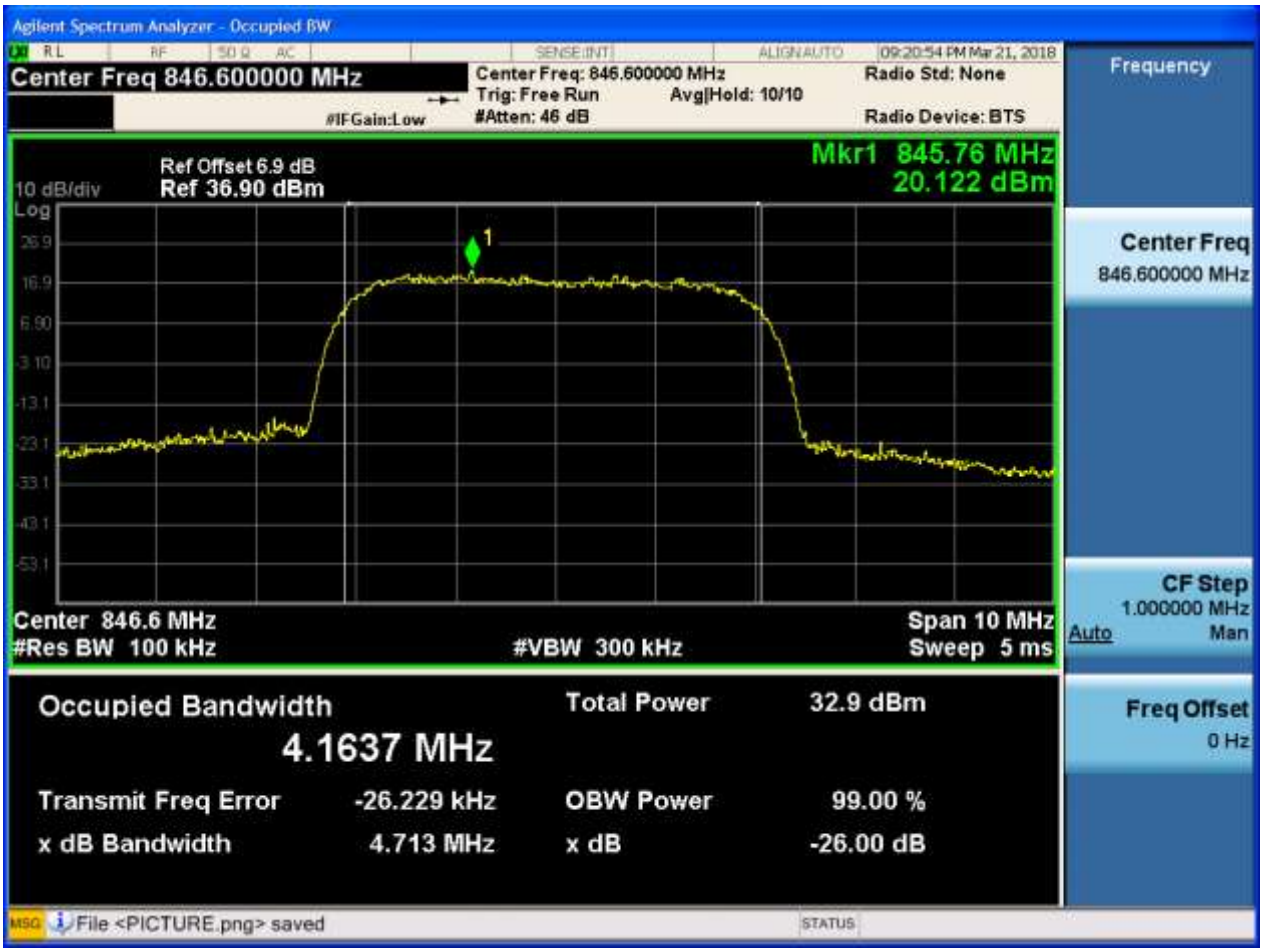
4.1.1.1.1 Test Channel = LCH



4.1.1.1.2 Test Channel = MCH



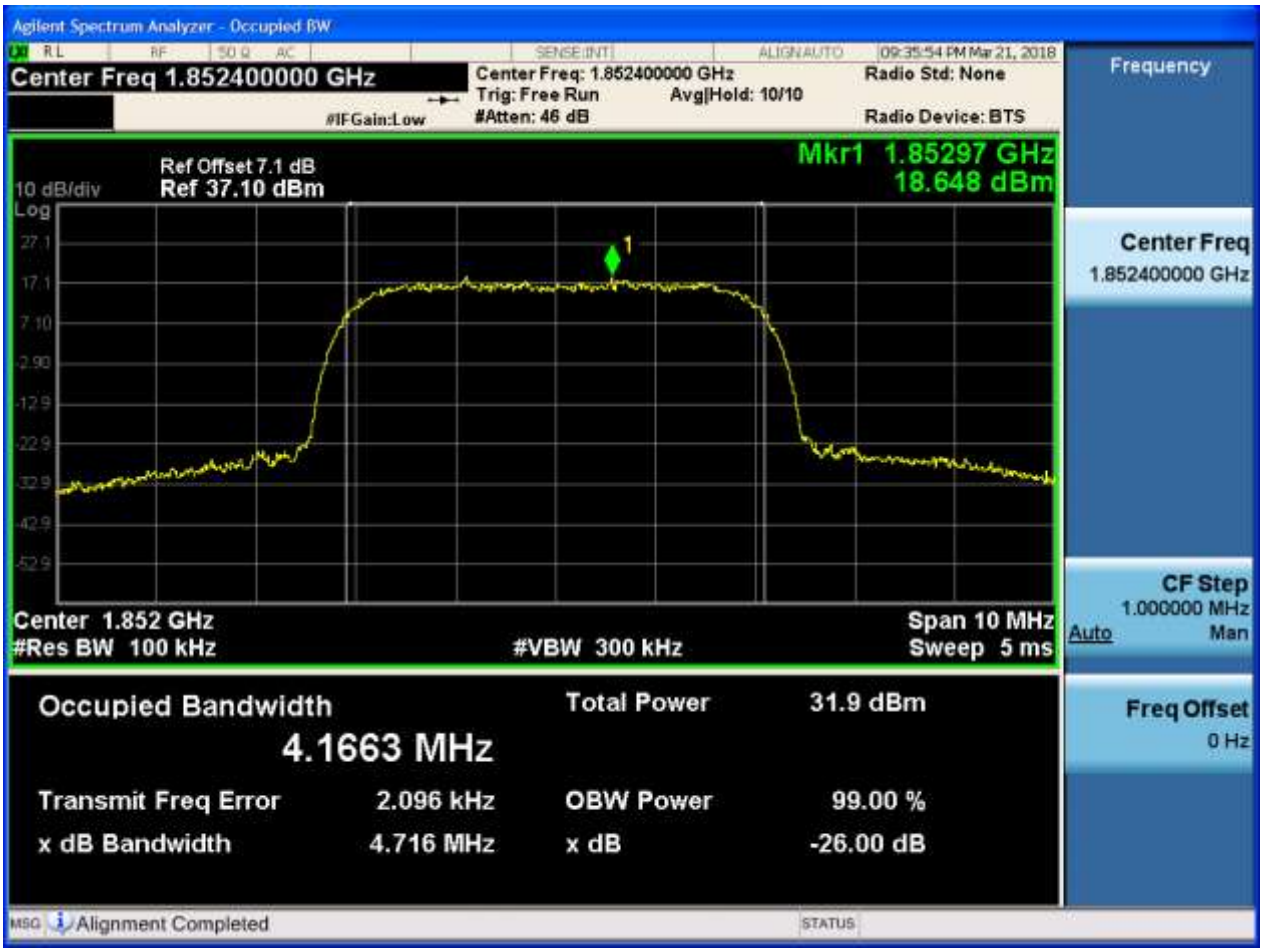
4.1.1.1.3 Test Channel = HCH



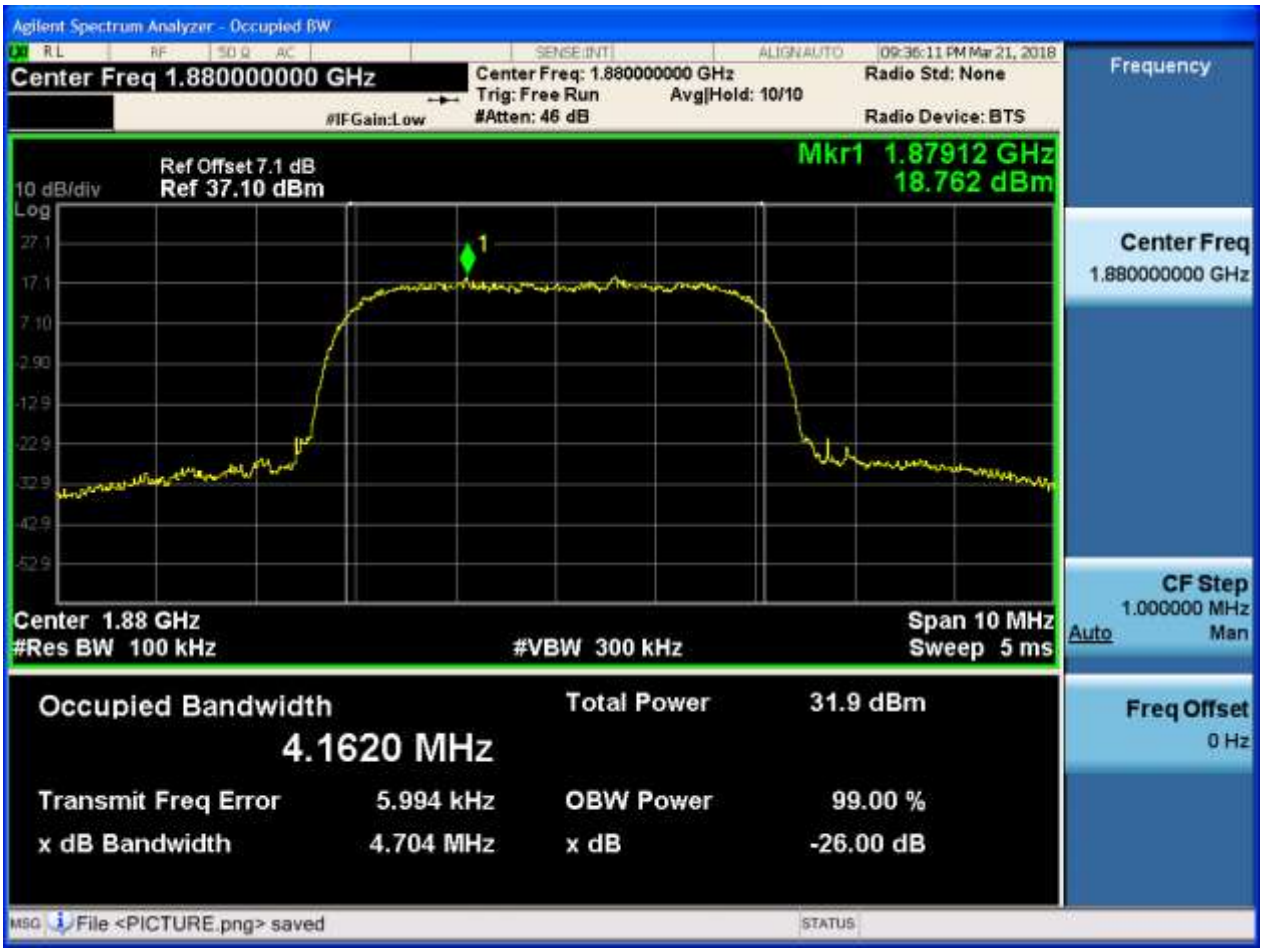
4.1.2 Test Band = WCDMA1900

4.1.2.1 Test Mode = UMTS/TM1

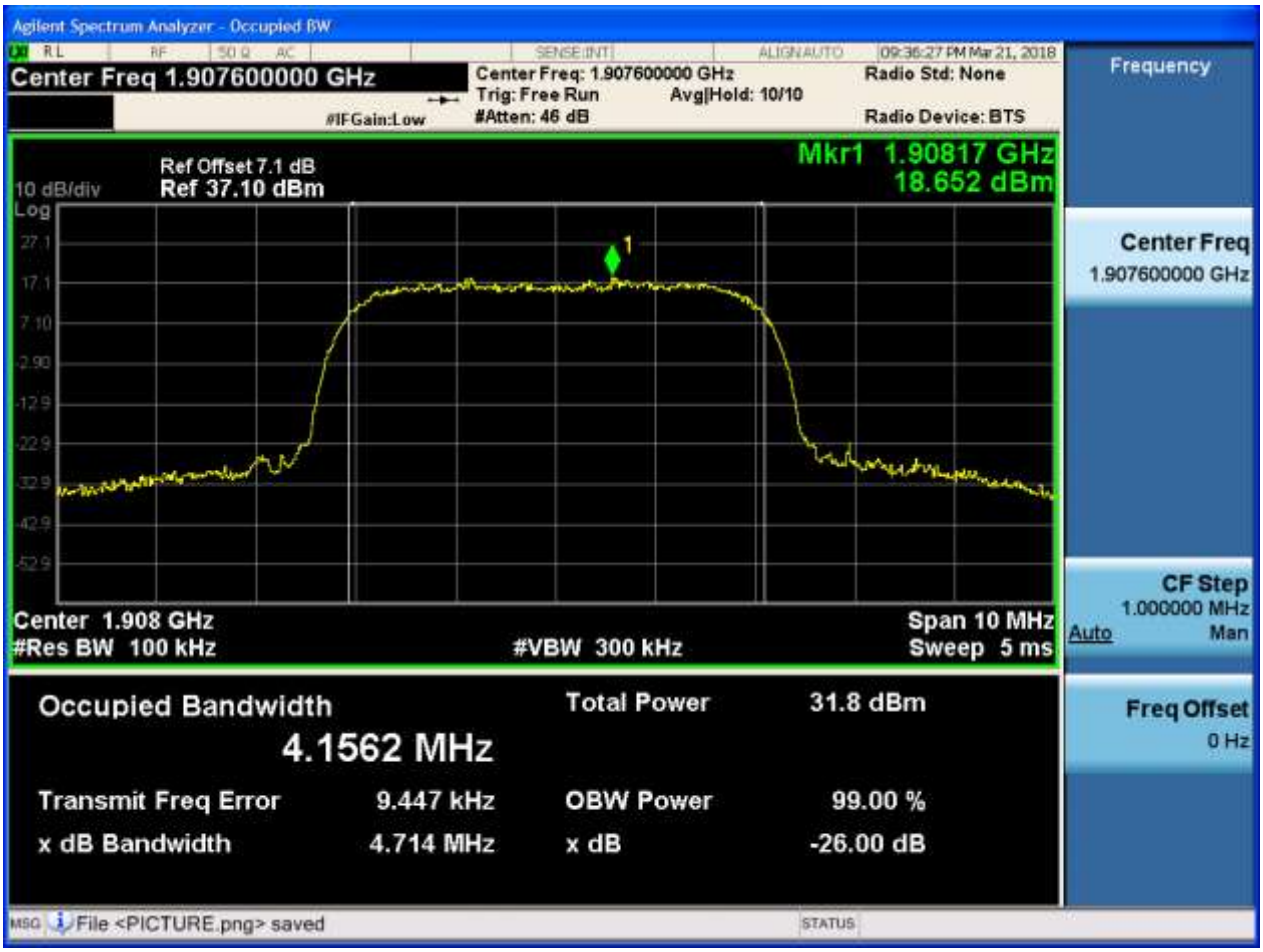
4.1.2.1.1 Test Channel = LCH



4.1.2.1.2 Test Channel = MCH



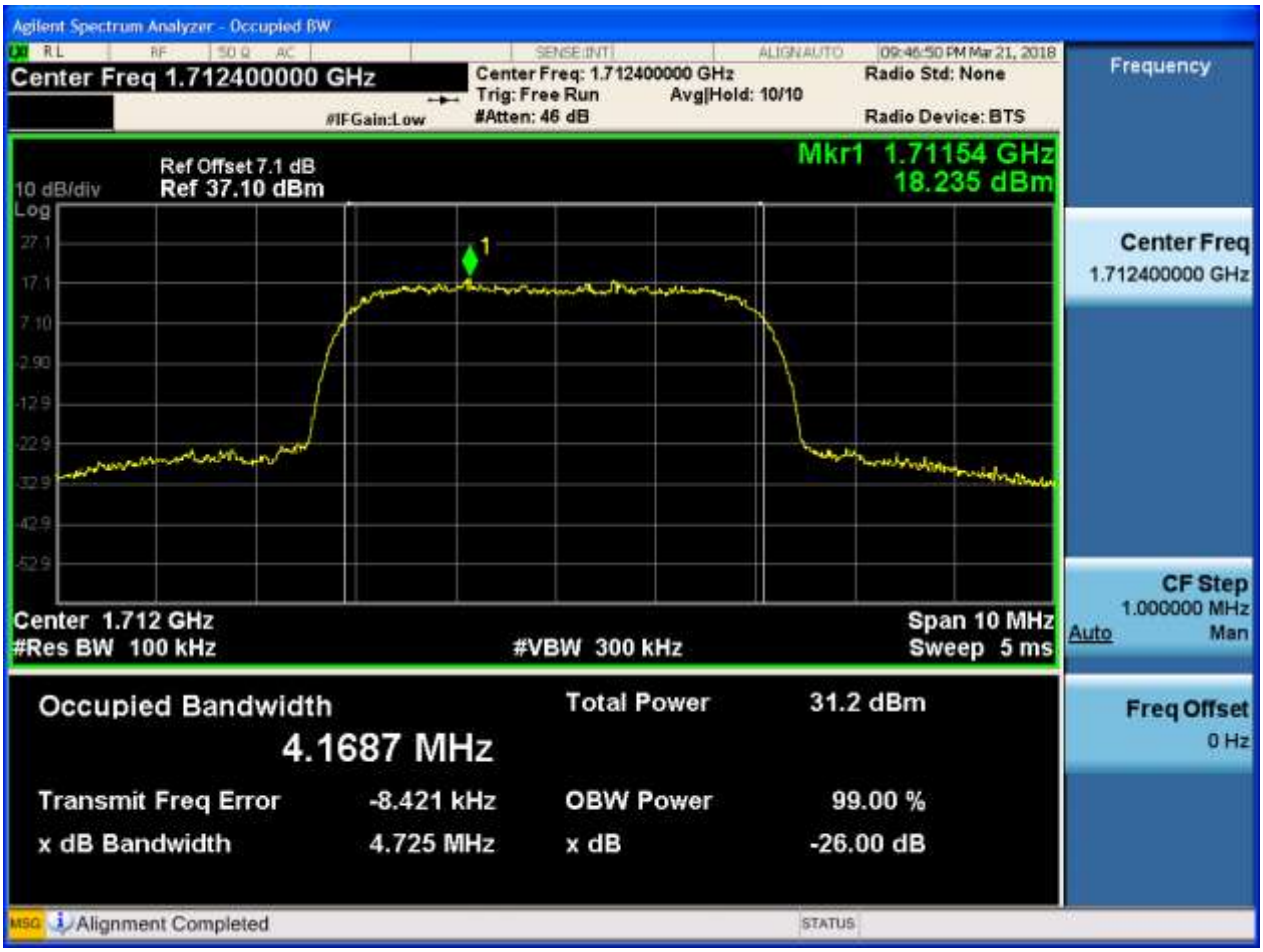
4.1.2.1.3 Test Channel = HCH



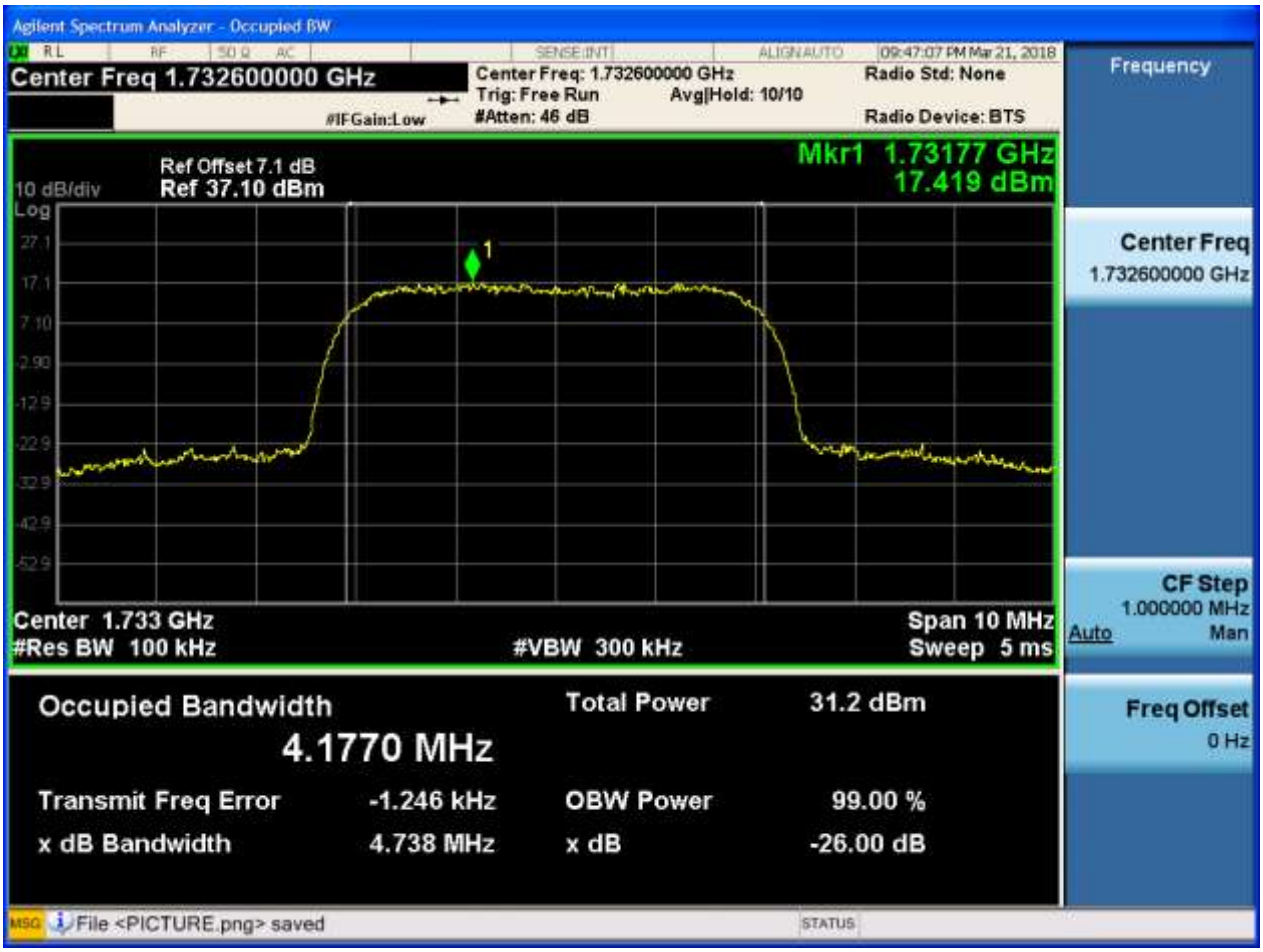
4.1.3 Test Band = WCDMA1700

4.1.3.1 Test Mode = UMTS/TM1

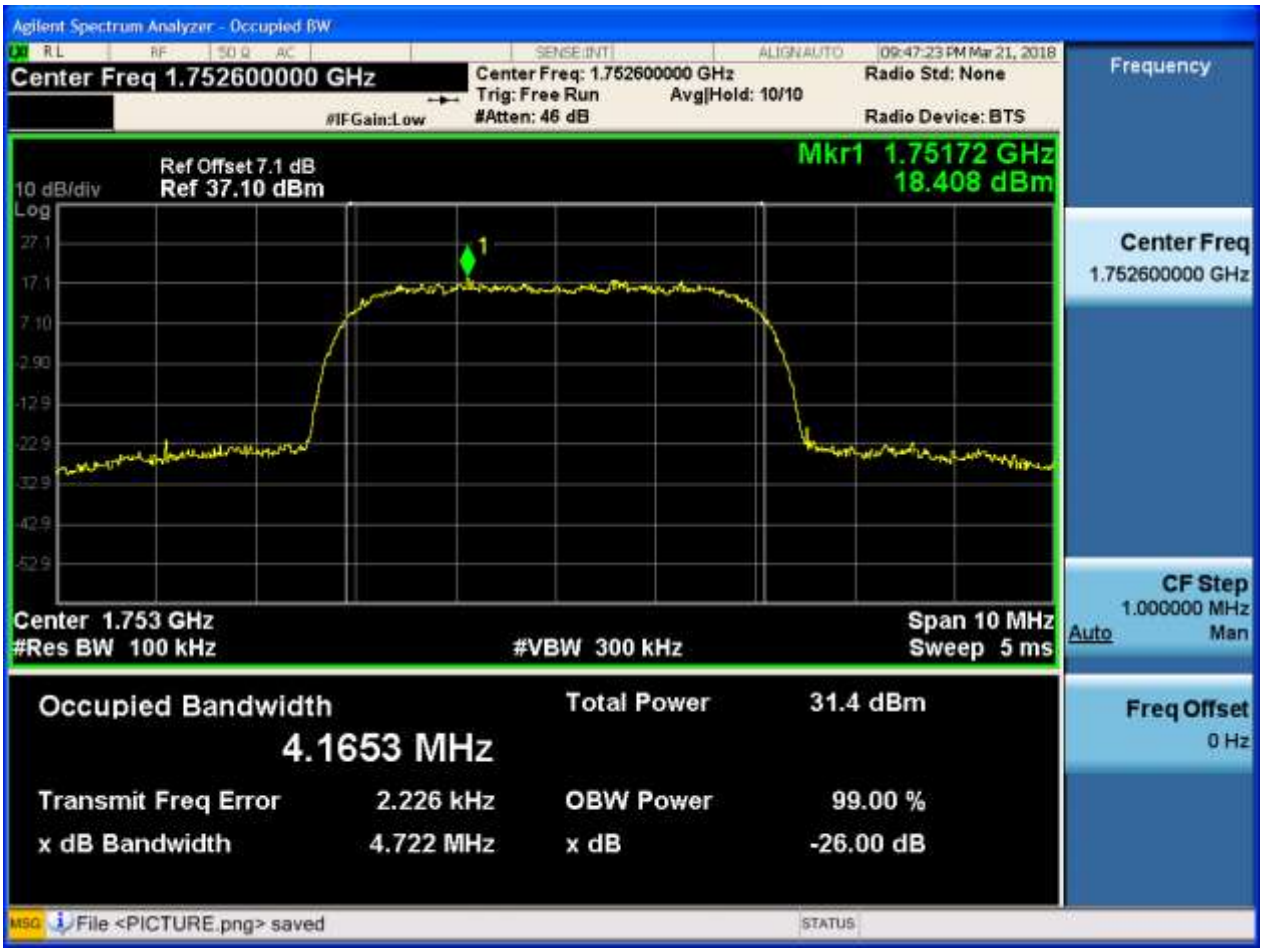
4.1.3.1.1 Test Channel = LCH



4.1.3.1.2 Test Channel = MCH



4.1.3.1.3 Test Channel = HCH



5Appendix_E: Band Edges Compliance

Part I - Test Plots

5.1 For UMTS

5.1.1 Test Band = WCDMA850

5.1.1.1 Test Mode = UMTS/TM1

5.1.1.1.1 Test Channel = LCH

5.1.1.1.2 Test Channel = HCH

5.1.2 Test Band = WCDMA1900

5.1.2.1 Test Mode = UMTS/TM1

5.1.2.1.1 Test Channel = LCH

5.1.2.1.2 Test Channel = HCH

5.1.3 Test Band = WCDMA1700

5.1.3.1 Test Mode = UMTS/TM1

5.1.3.1.1 Test Channel = LCH

5.1.3.1.2 Test Channel = HCH

6Appendix_F: Spurious Emission at Antenna Terminal

NOTE: For the averaged unwanted emissions measurements, the measurement points in each sweep is greater than twice the Span/RBW in order to ensure bin-to-bin spacing of < RBW/2 so that narrowband signals are not lost between frequency bins. As to the present test item, the "Measurement Points = k * (Span / RBW)" with k between 4 and 5, which results in an acceptable level error of less than 0.5 dB.

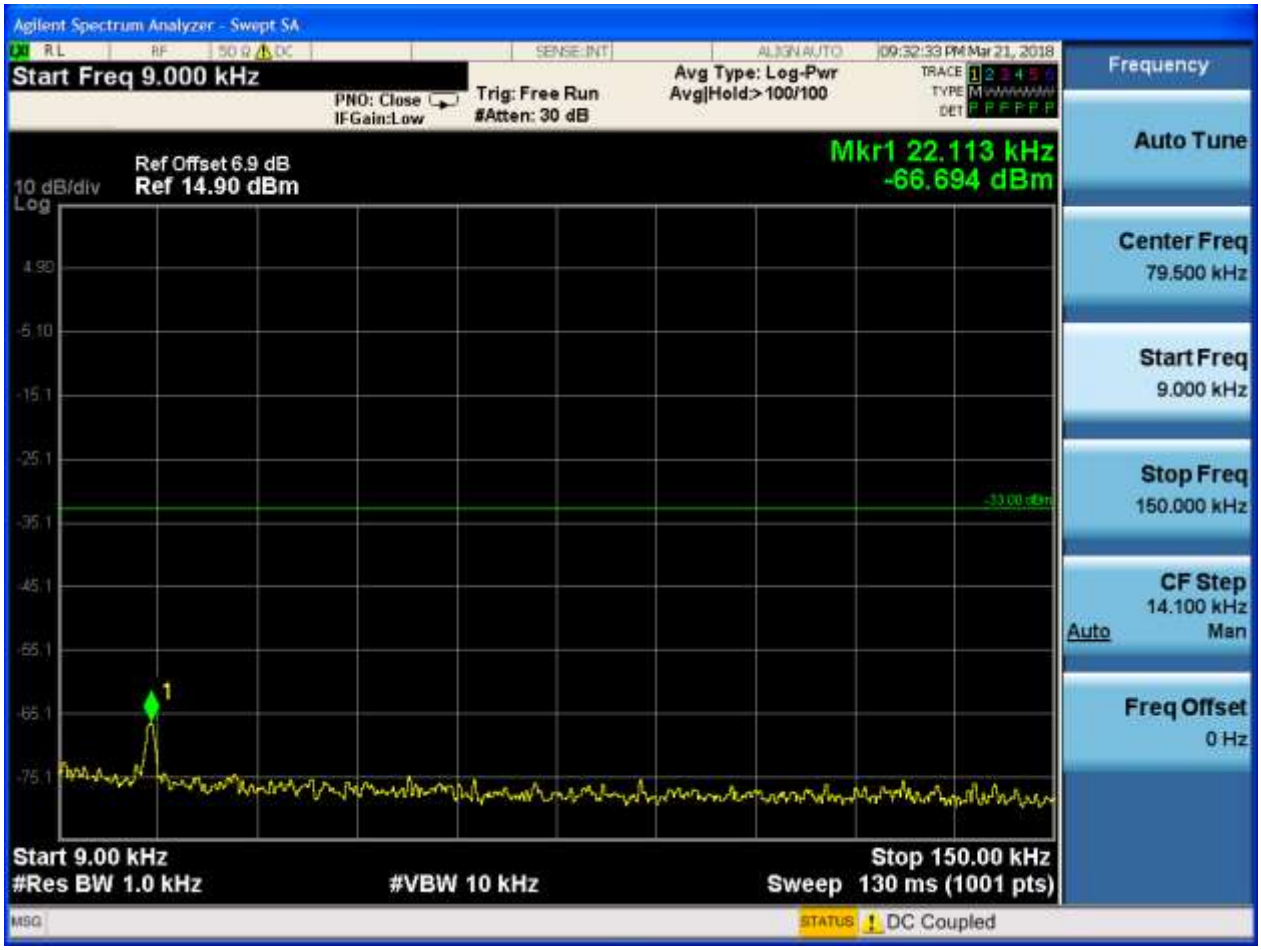
Part I - Test Plots

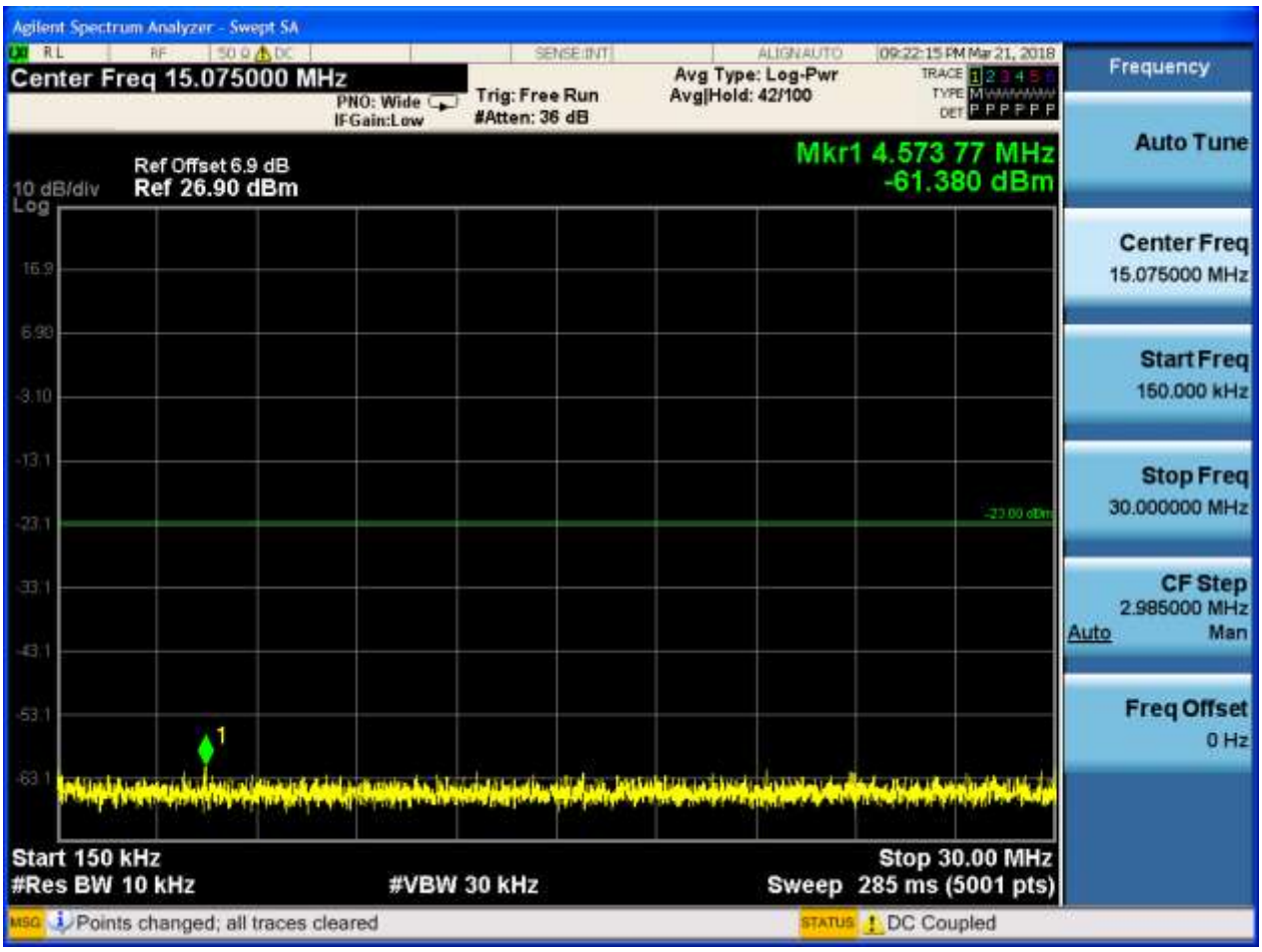
6.1 For UMTS

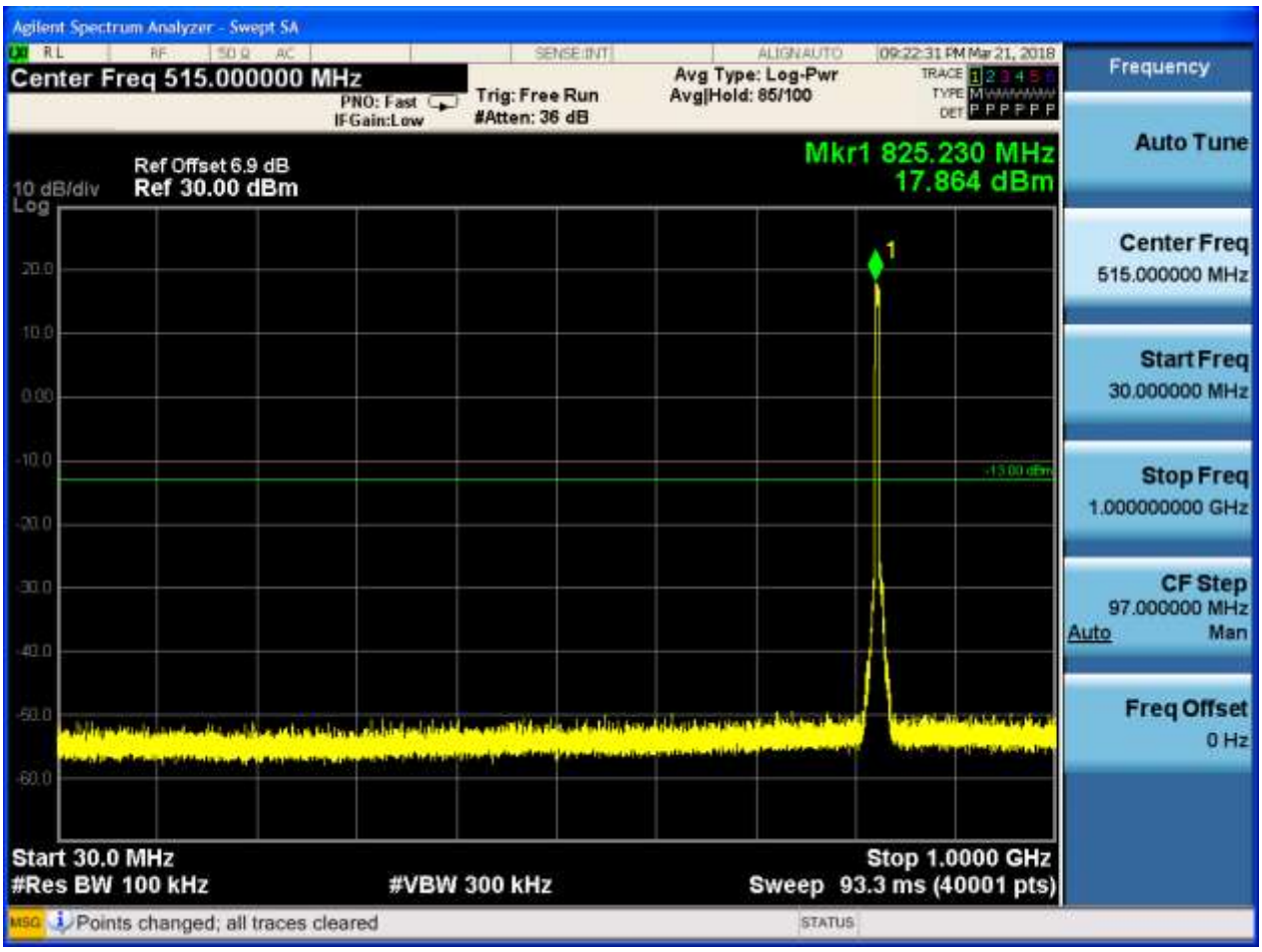
6.1.1 Test Band = WCDMA850

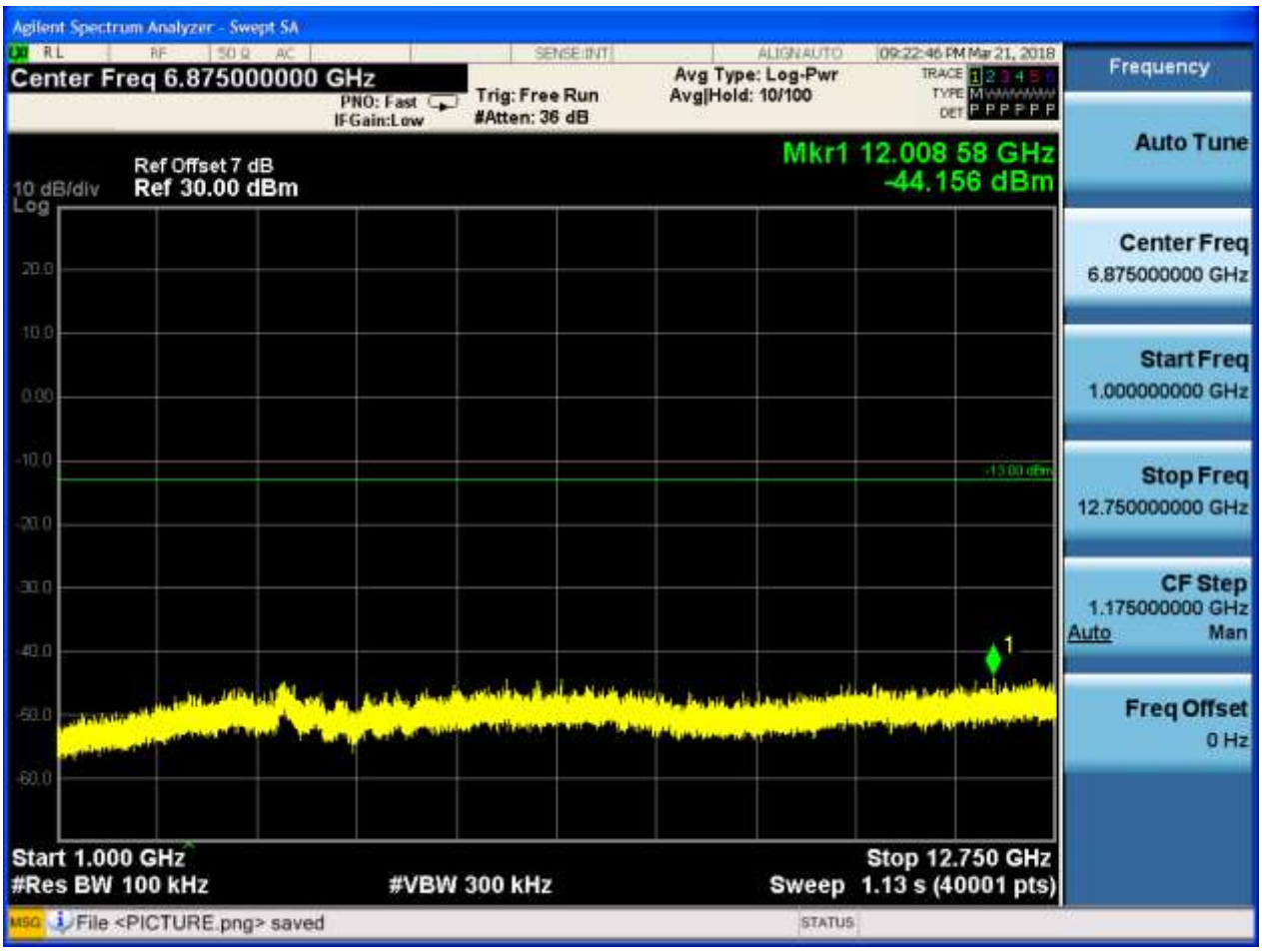
6.1.1.1 Test Mode = UMTS/TM1

6.1.1.1.1 Test Channel = LCH

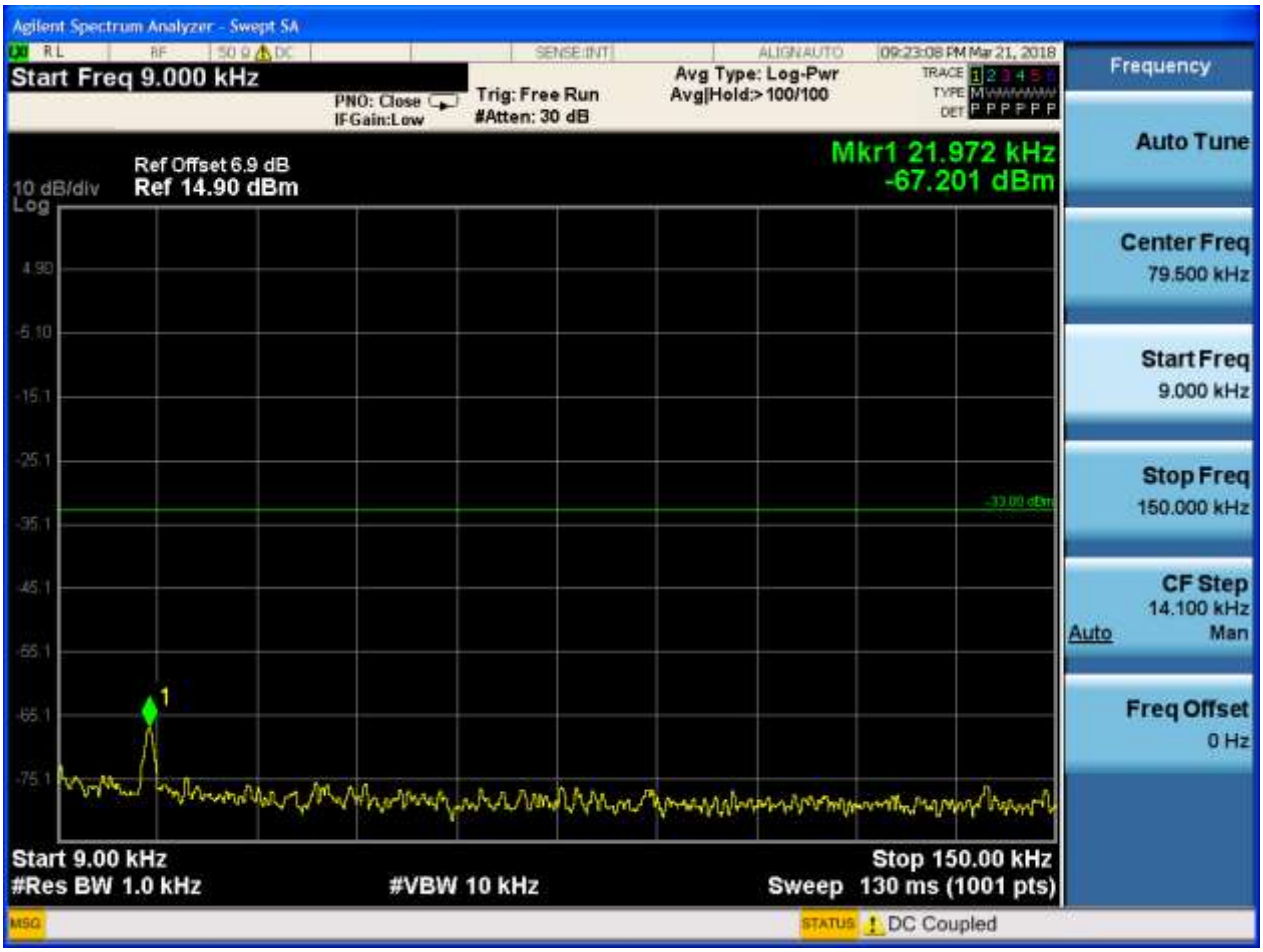


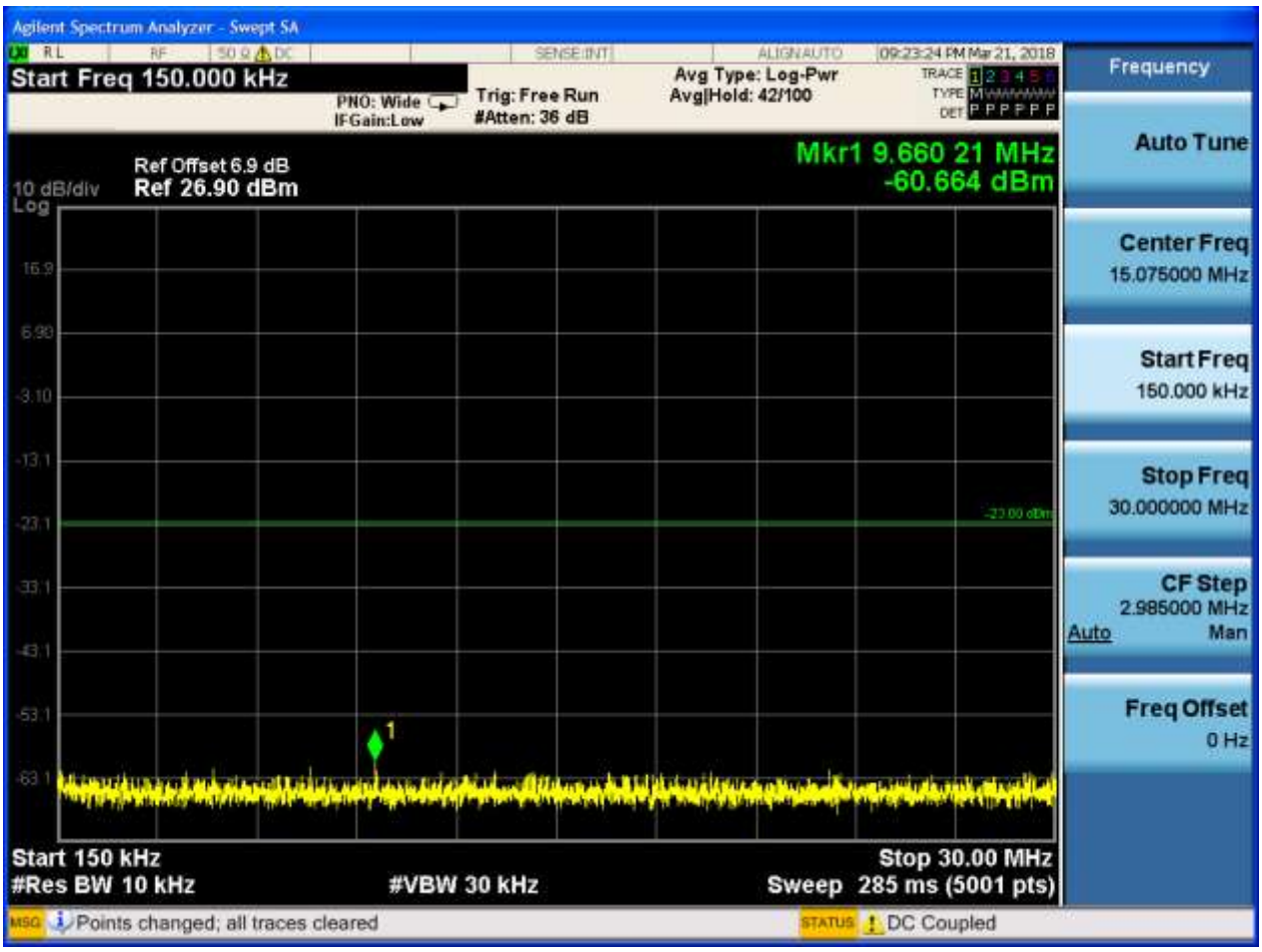


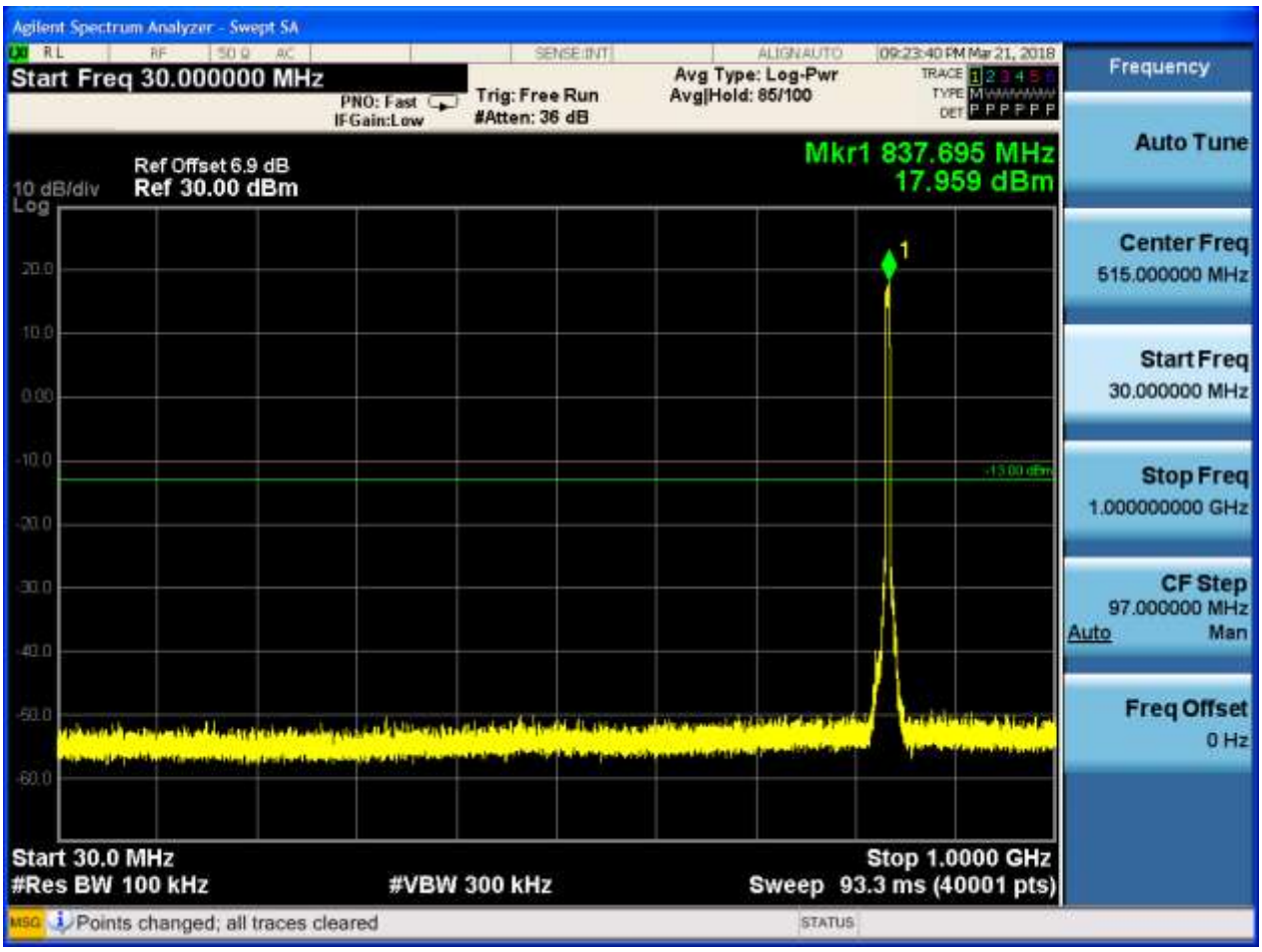




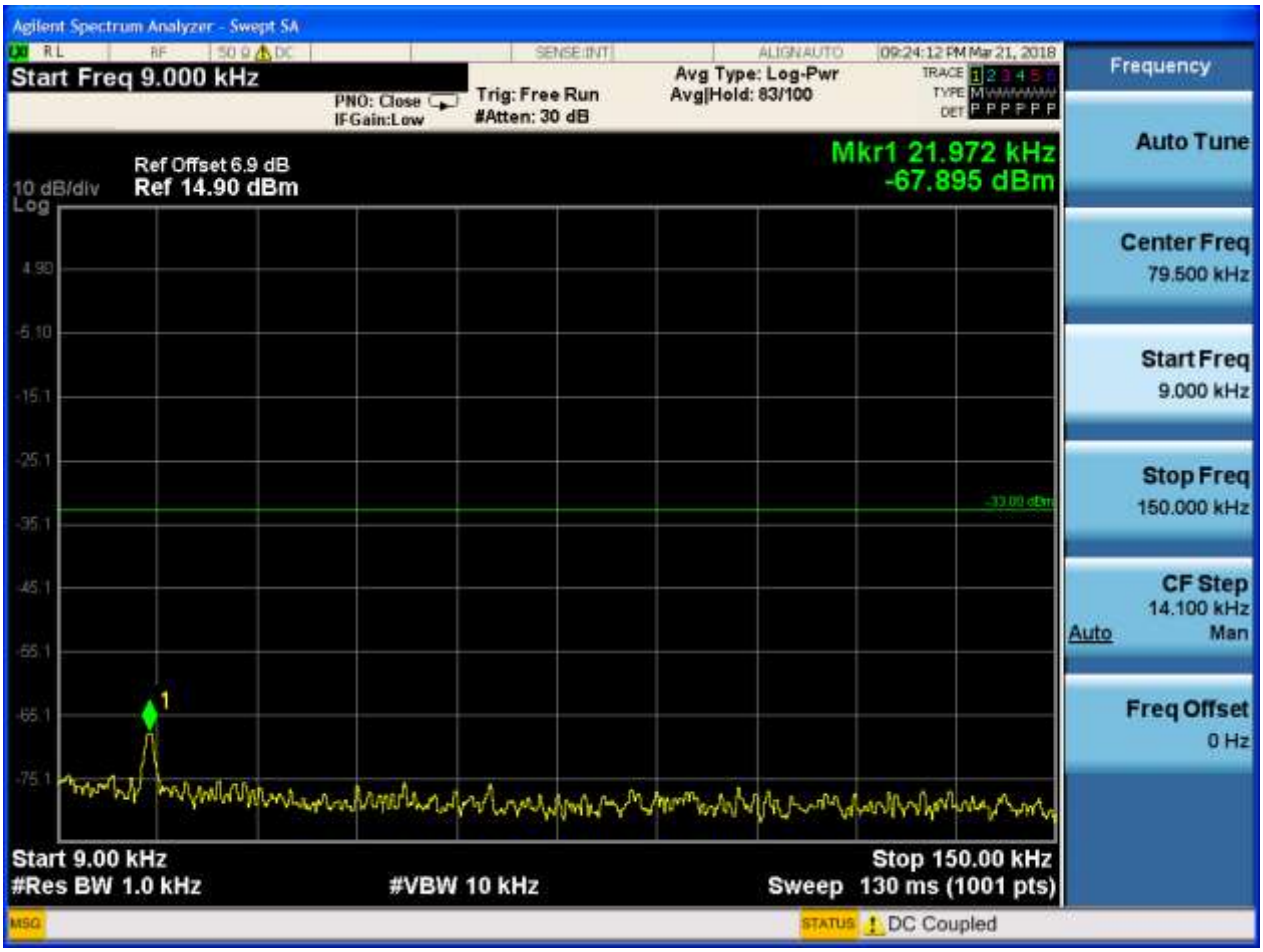
6.1.1.1.2 Test Channel = MCH

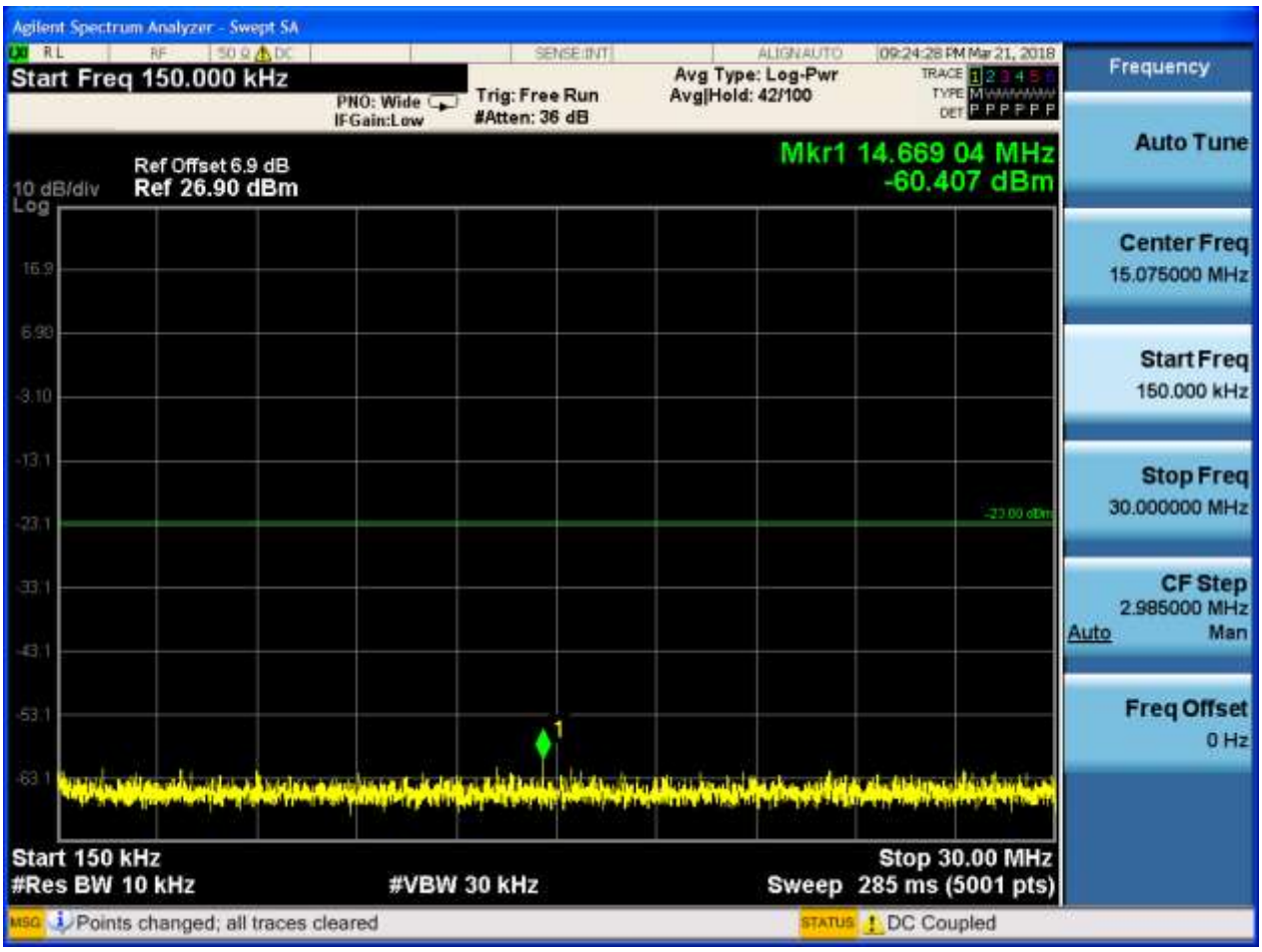


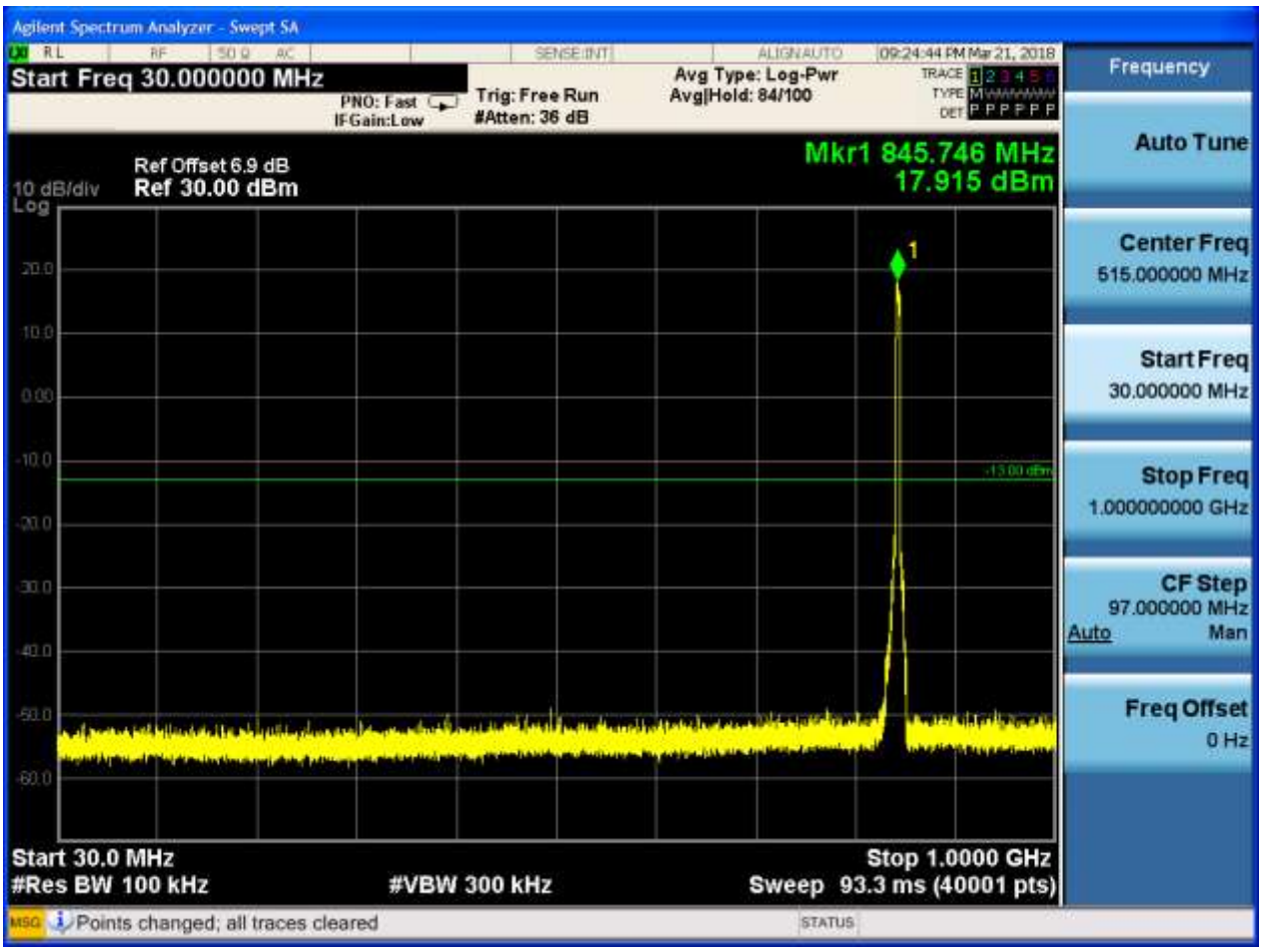




6.1.1.1.3 Test Channel = HCH



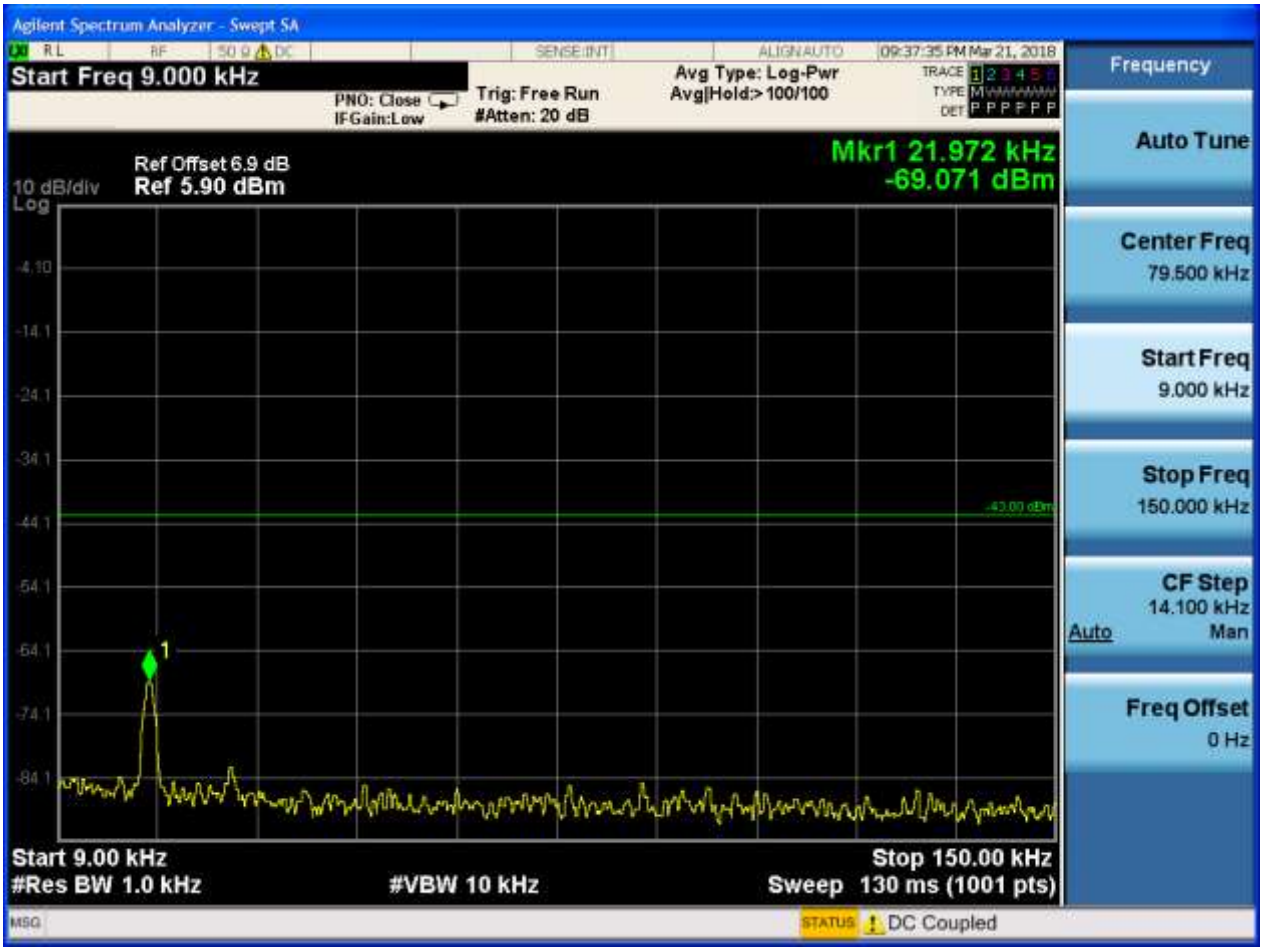


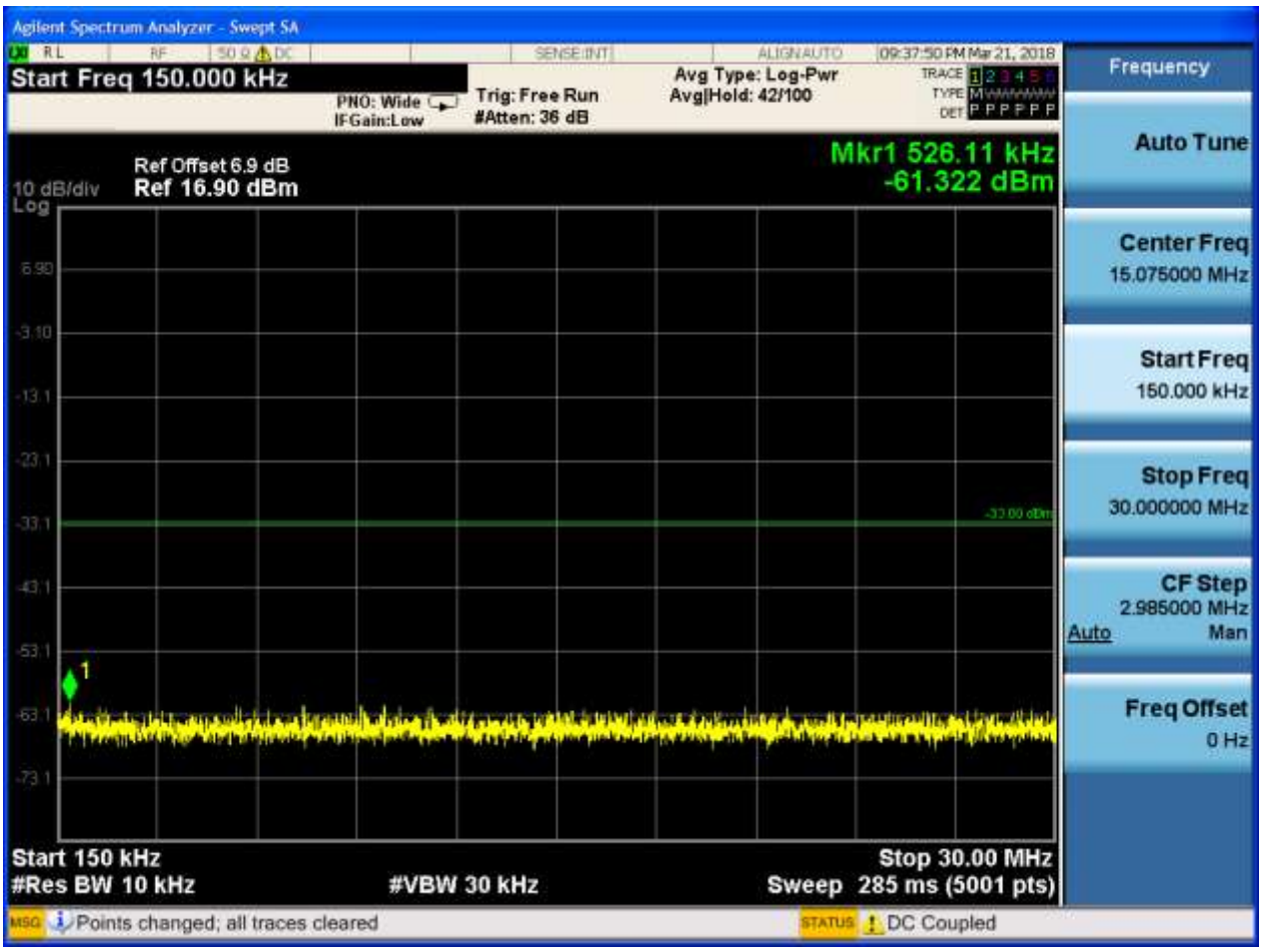


6.1.2 Test Band = WCDMA1900

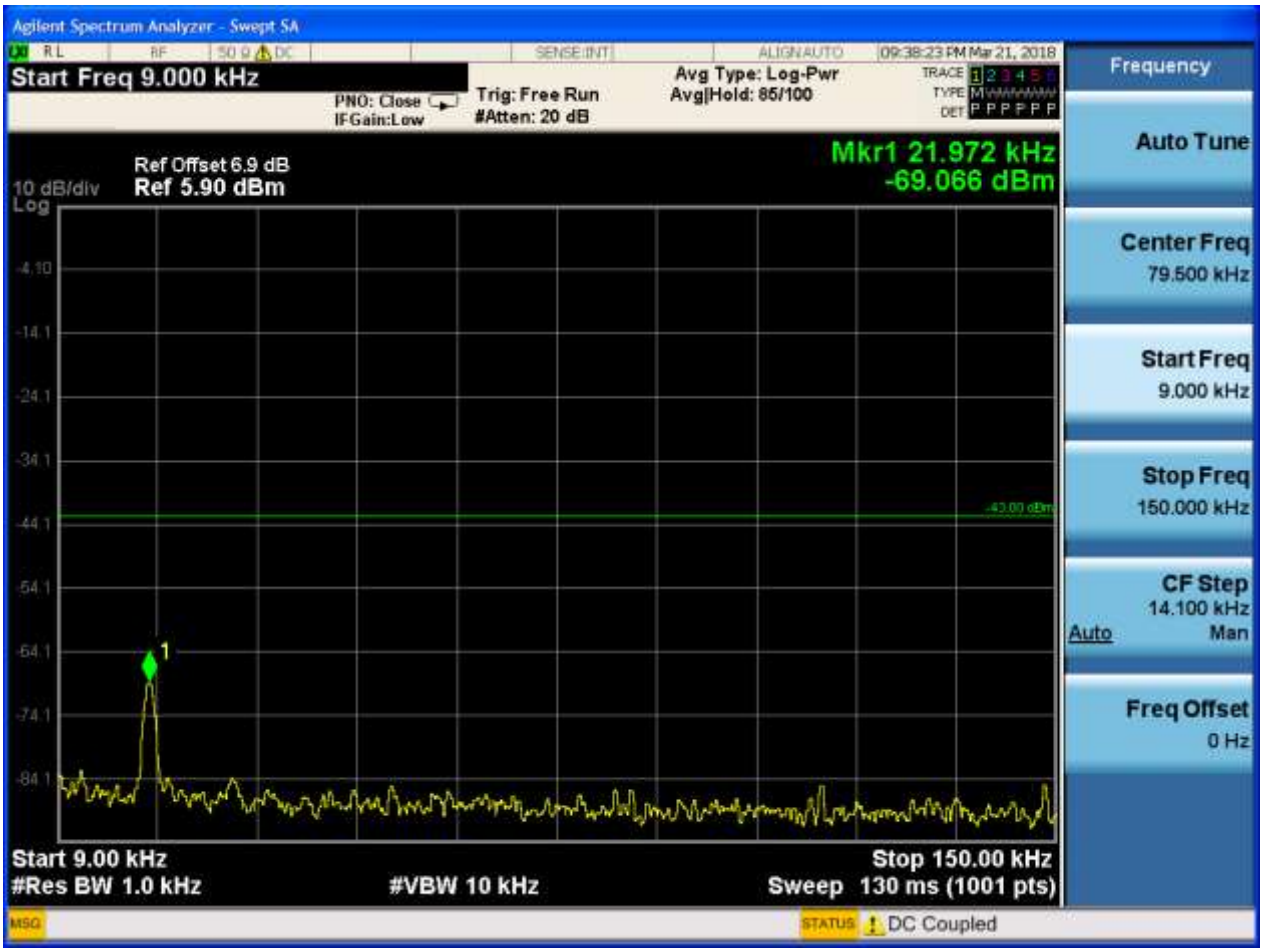
6.1.2.1 Test Mode = UMTS/TM1

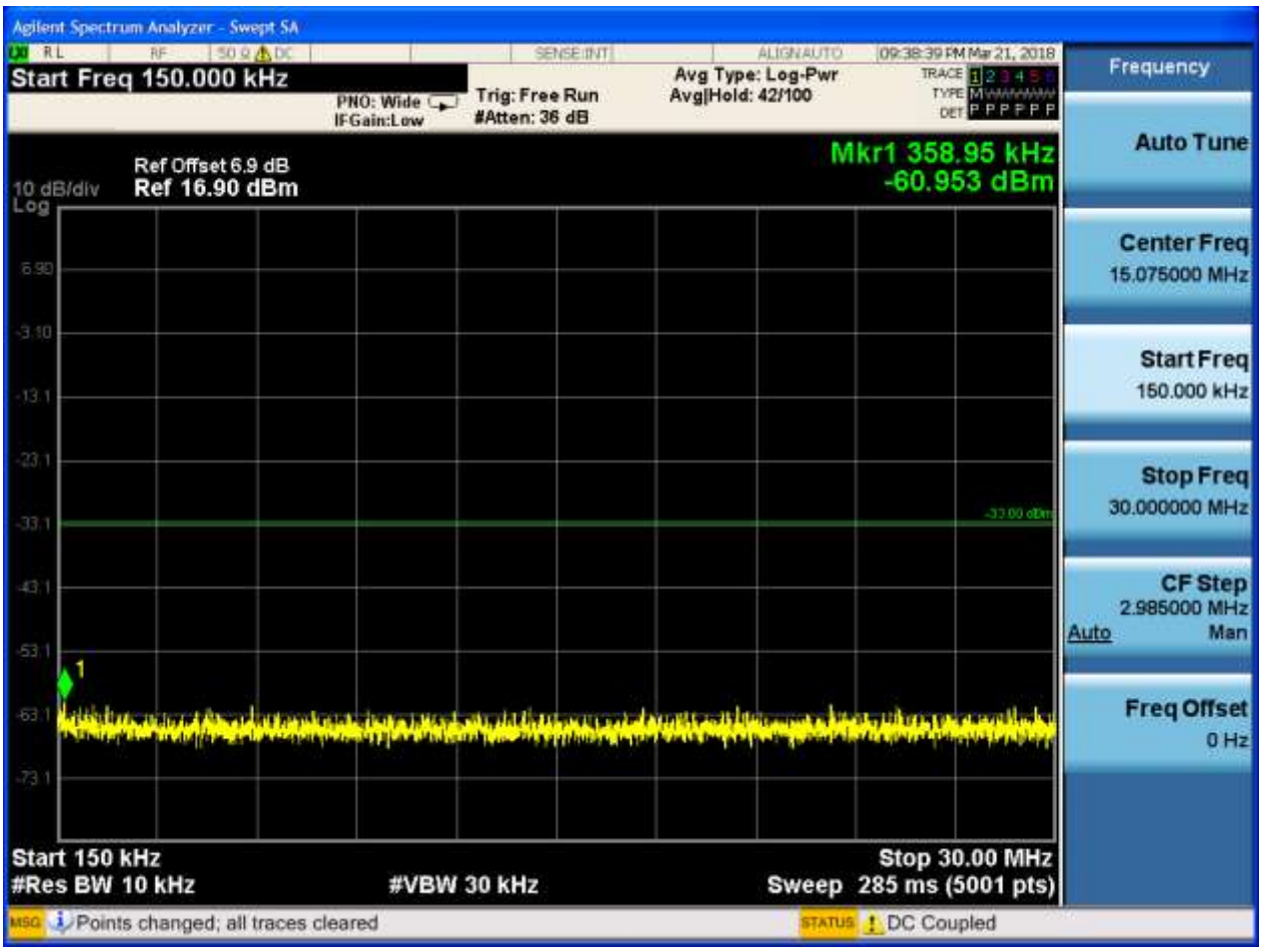
6.1.2.1.1 Test Channel = LCH



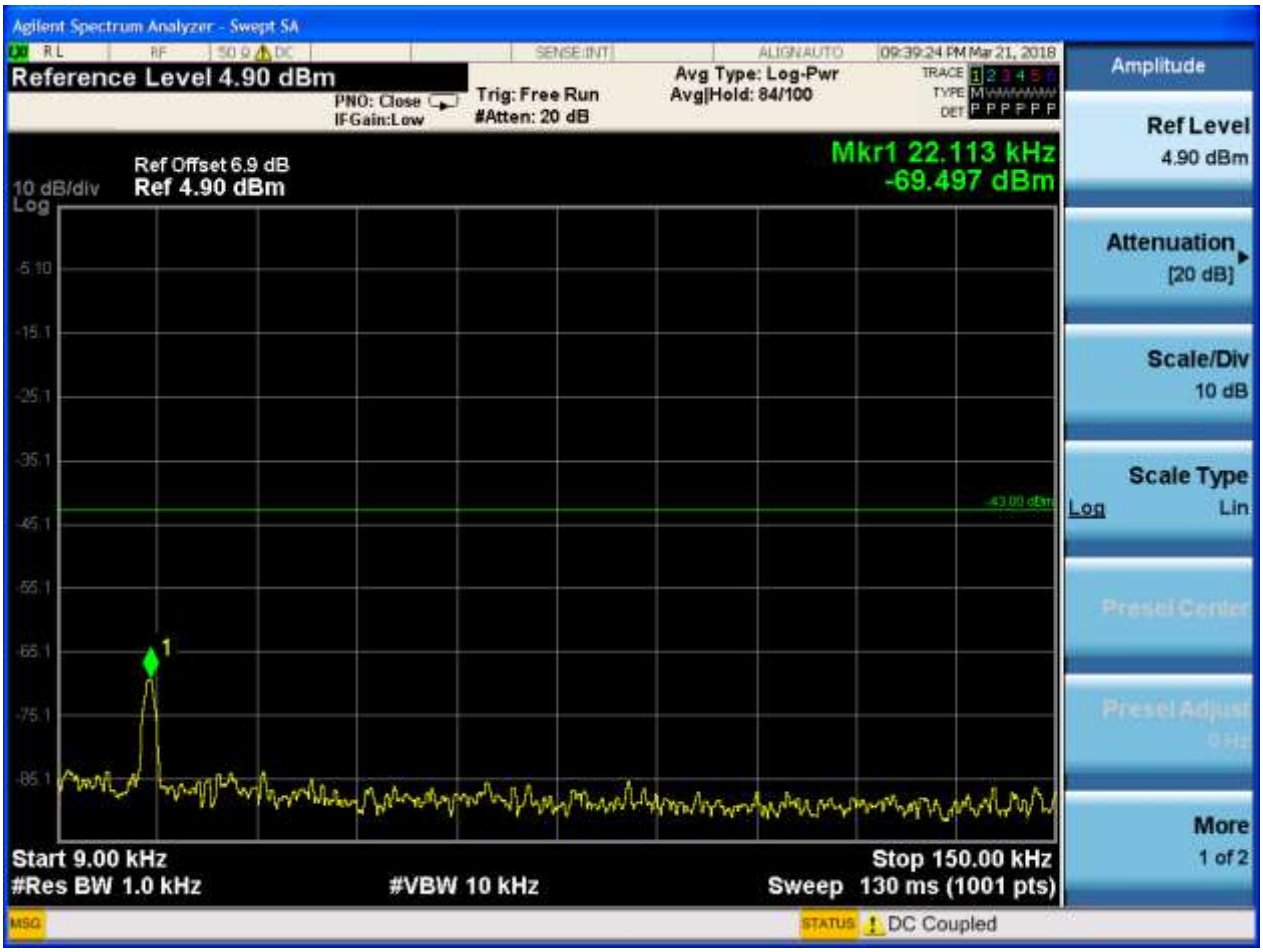


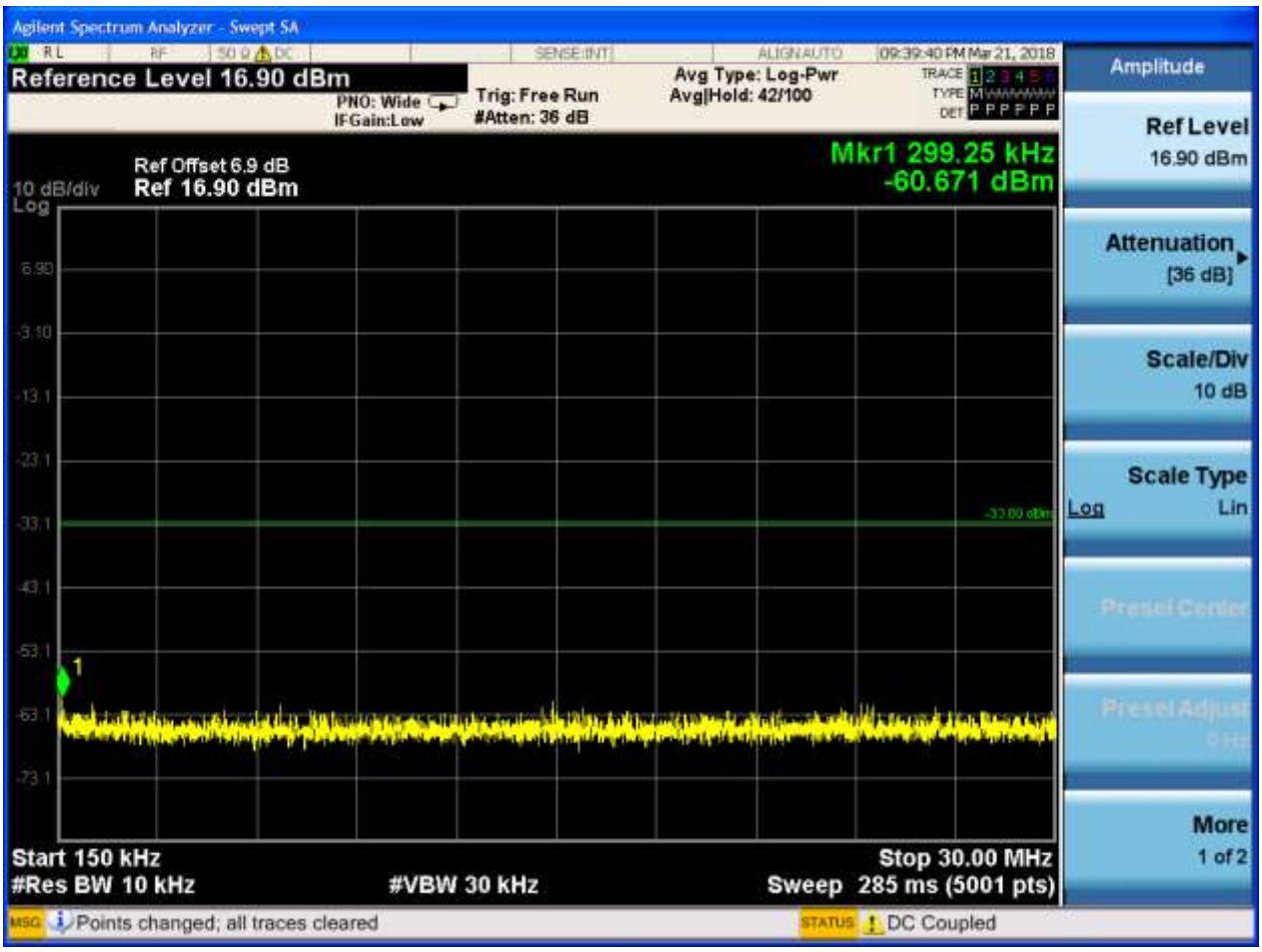
6.1.2.1.2 Test Channel = MCH





6.1.2.1.3 Test Channel = HCH

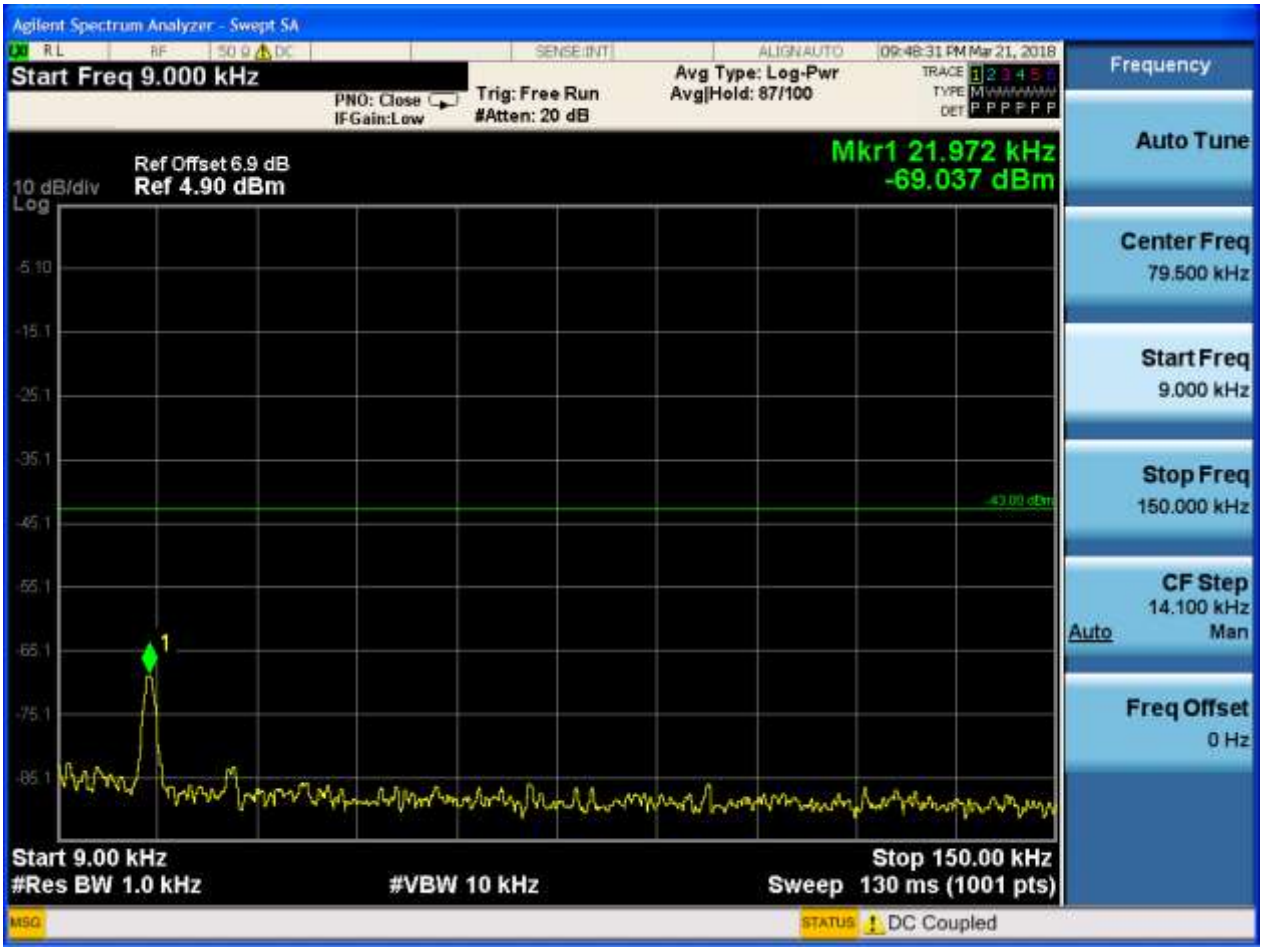


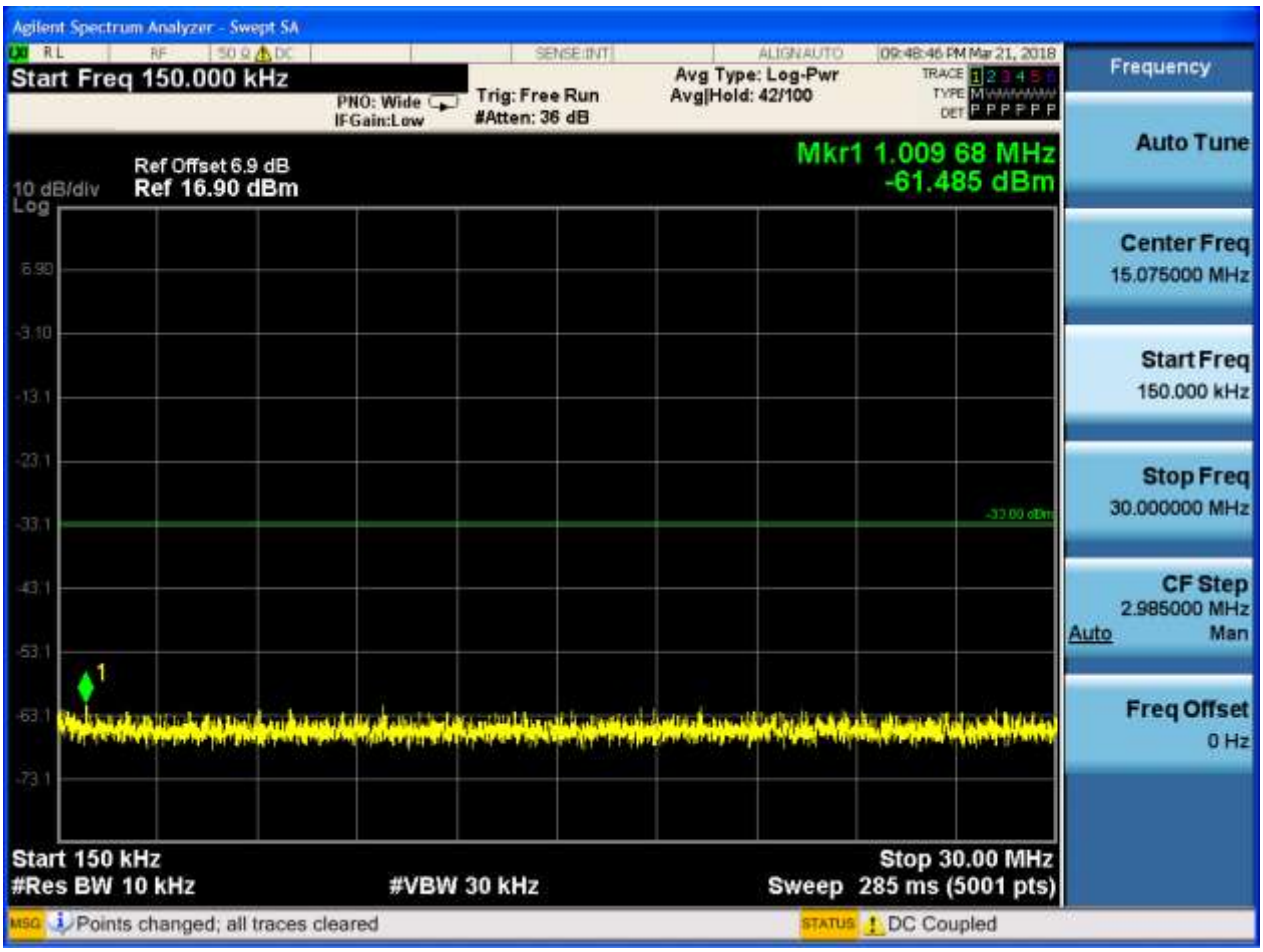


6.1.3 Test Band = WCDMA1700

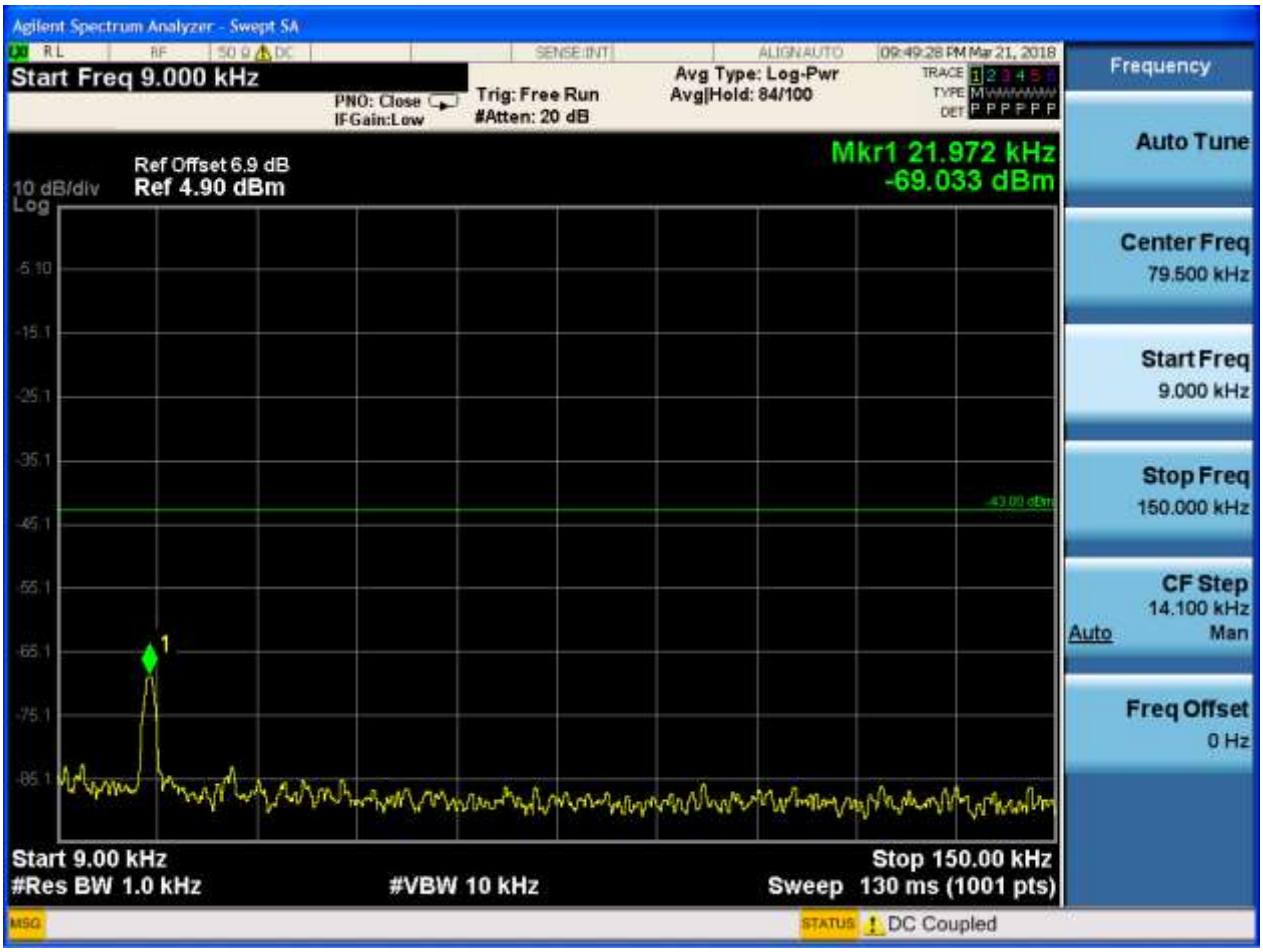
6.1.3.1 Test Mode = UMTS/TM1

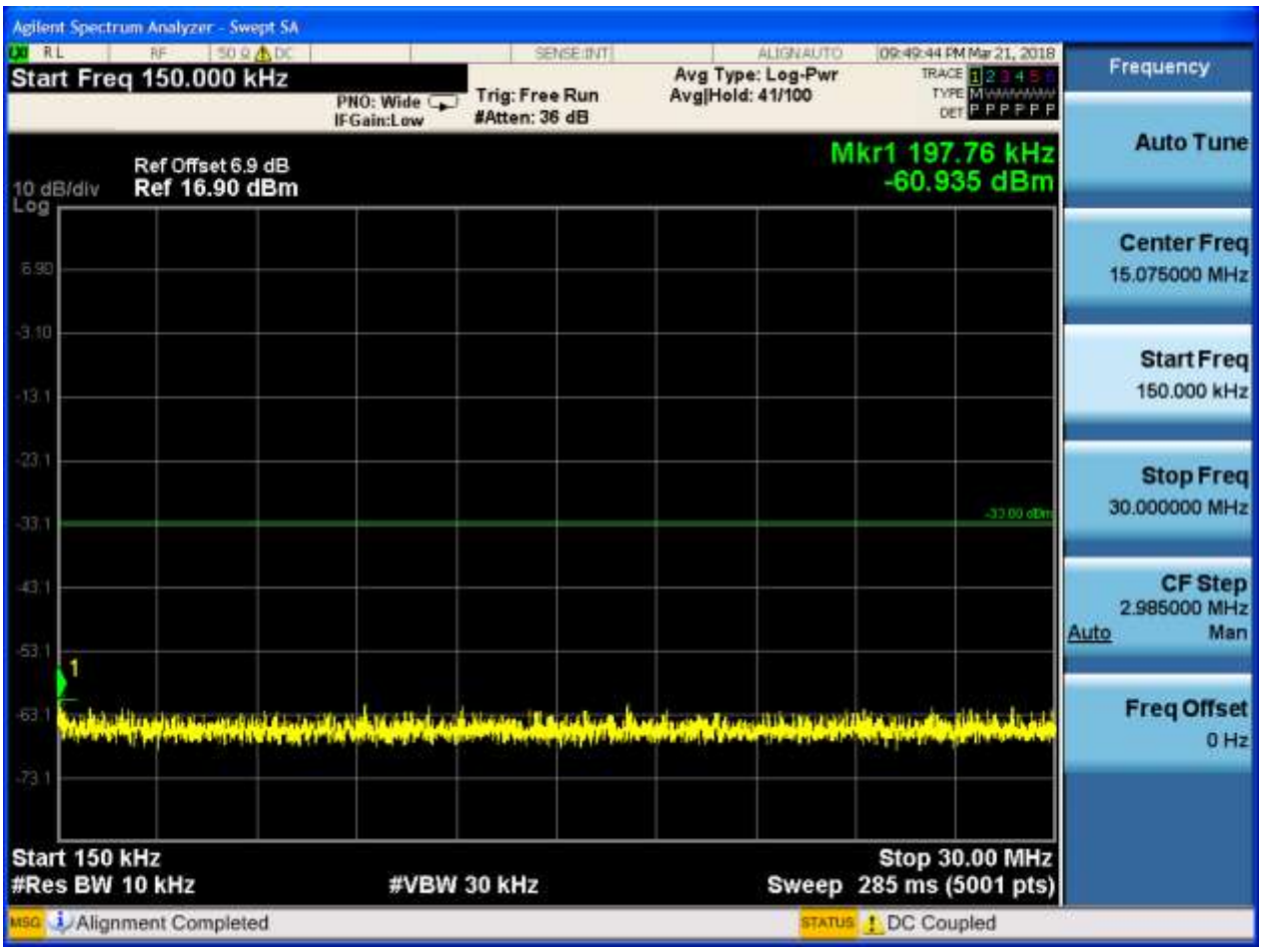
6.1.3.1.1 Test Channel = LCH



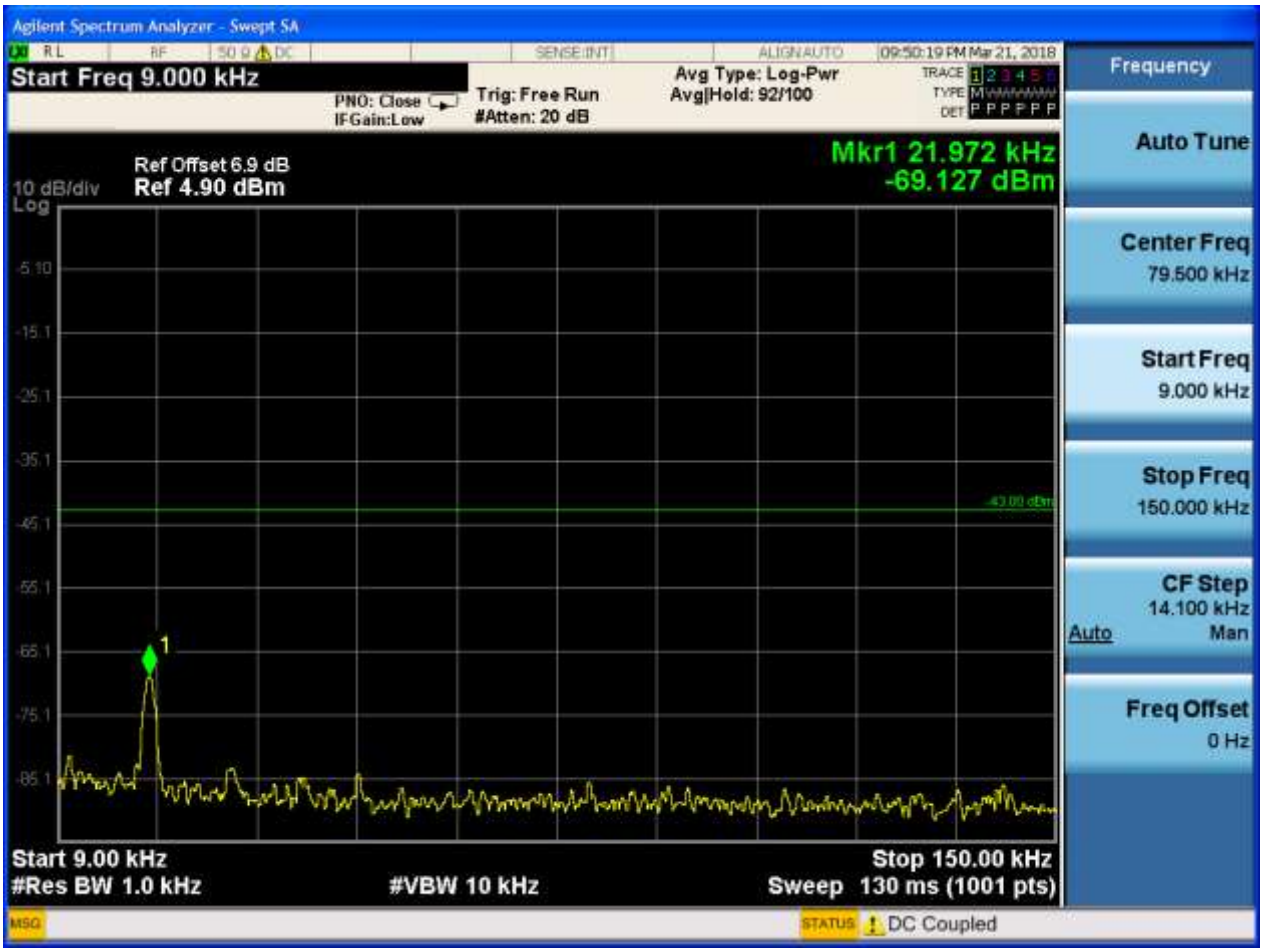


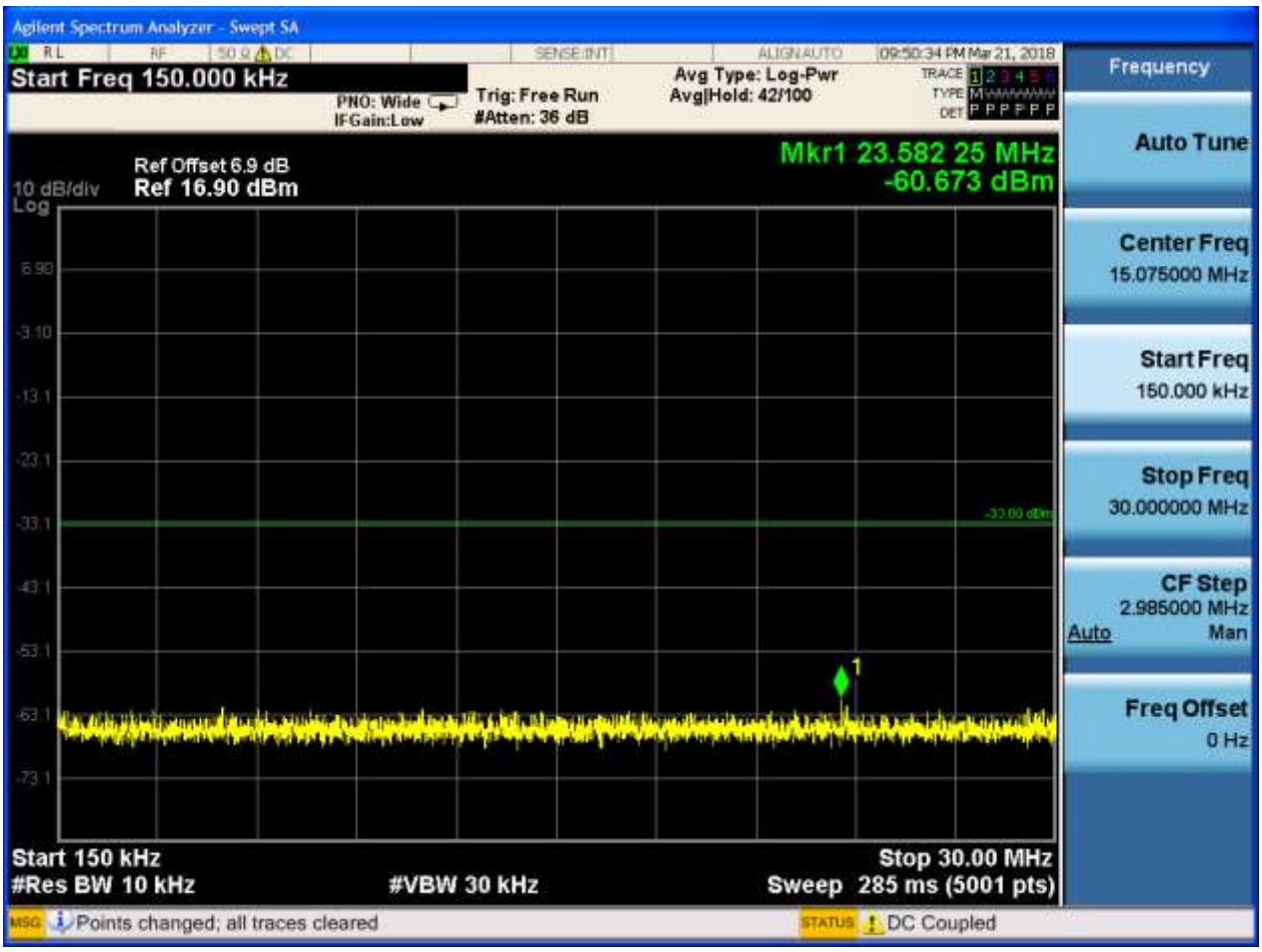
6.1.3.1.2 Test Channel = MCH





6.1.3.1.3 Test Channel = HCH





7Appendix_G: Field Strength of Spurious Radiation

Note: We tested all modes, but the data presented below is the worst case.

9kHz~150kHz, RBW = 200Hz, VBW = 600 Hz, Detector: PK

150kHz~30MHz, RBW = 9kHz, VBW = 30k Hz, Detector: PK

30MHz~1GHz, RBW = 100 kHz, VBW = 300 kHz. Detector: PK

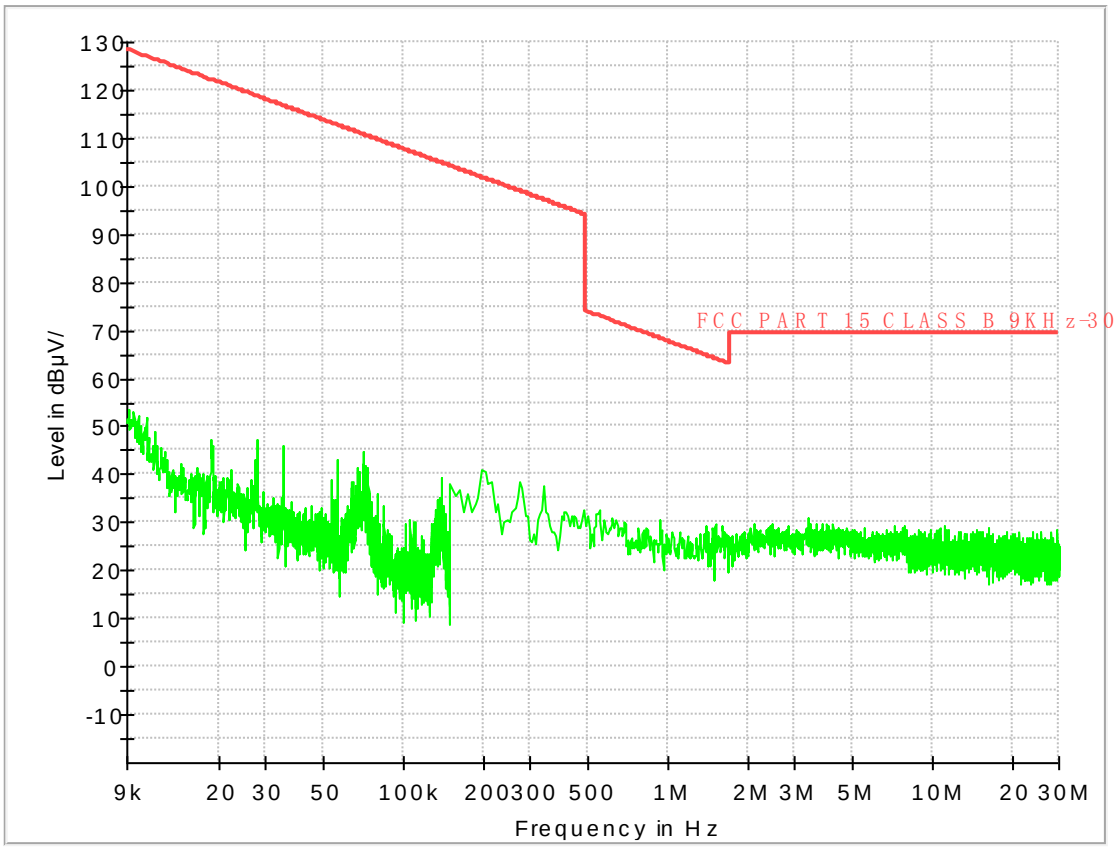
Above 1GHz, RBW = 1 MHz, VBW = 3 MHz. Detector: PK

Part I - Test Plots

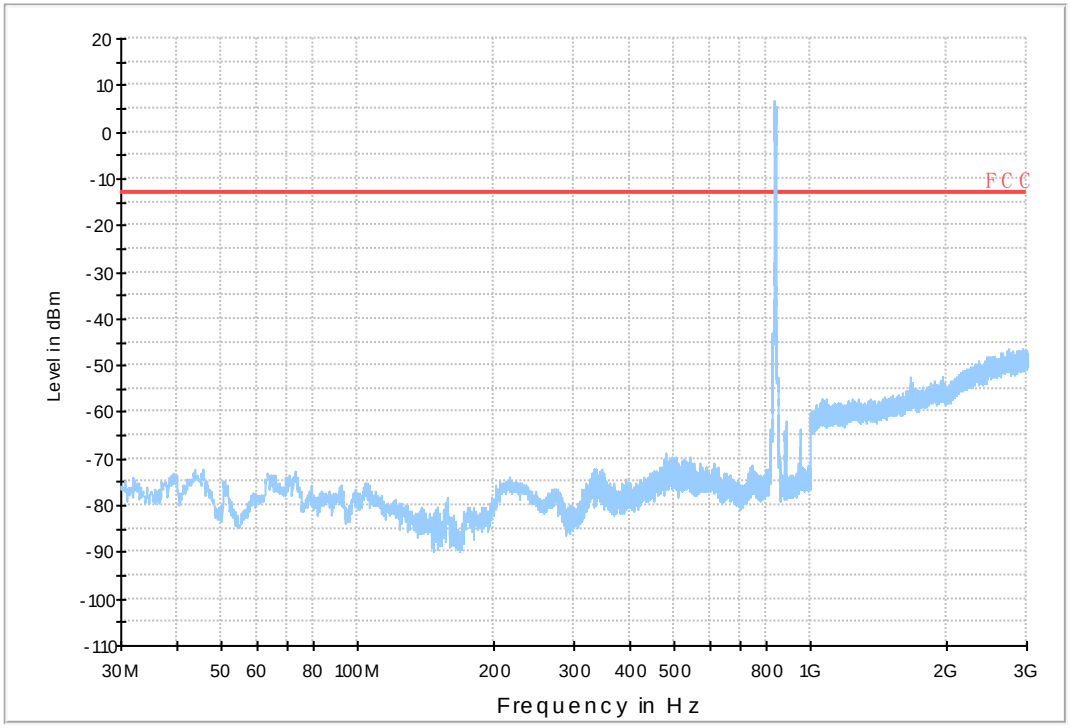
7.1 For UMTS

7.1.1 Test Band = WCDMA850_ANT1

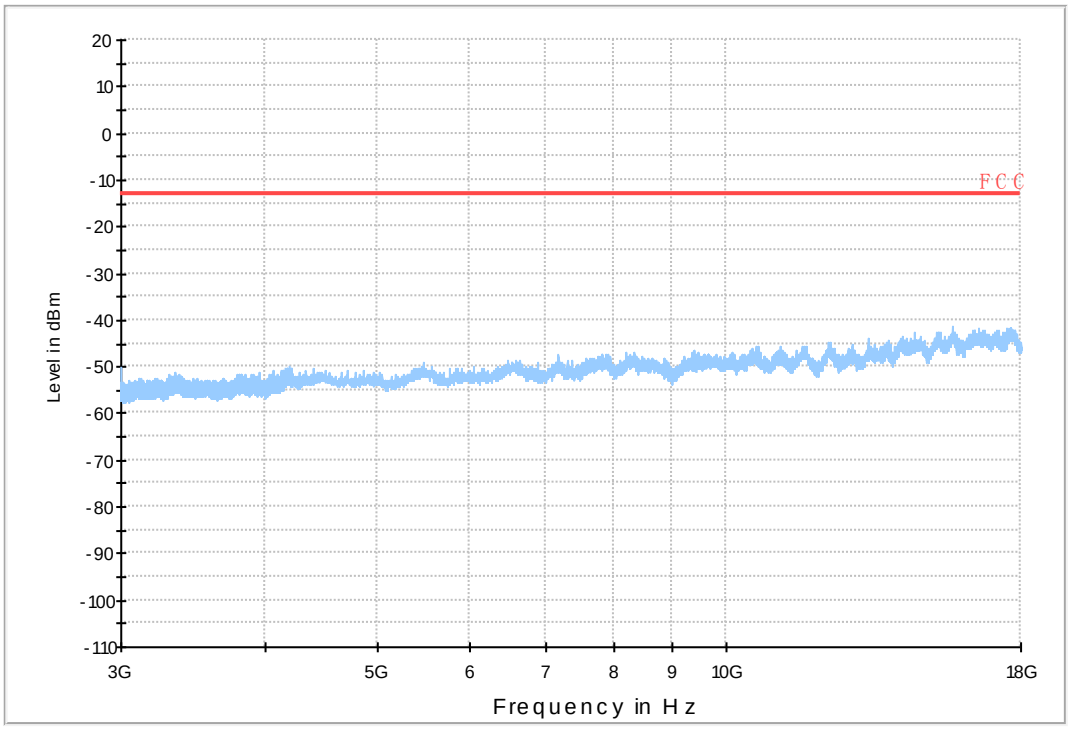
7.1.1.1 Test Mode = UMTS/TM1



Copy of FCC PART22 WCDMA850_L

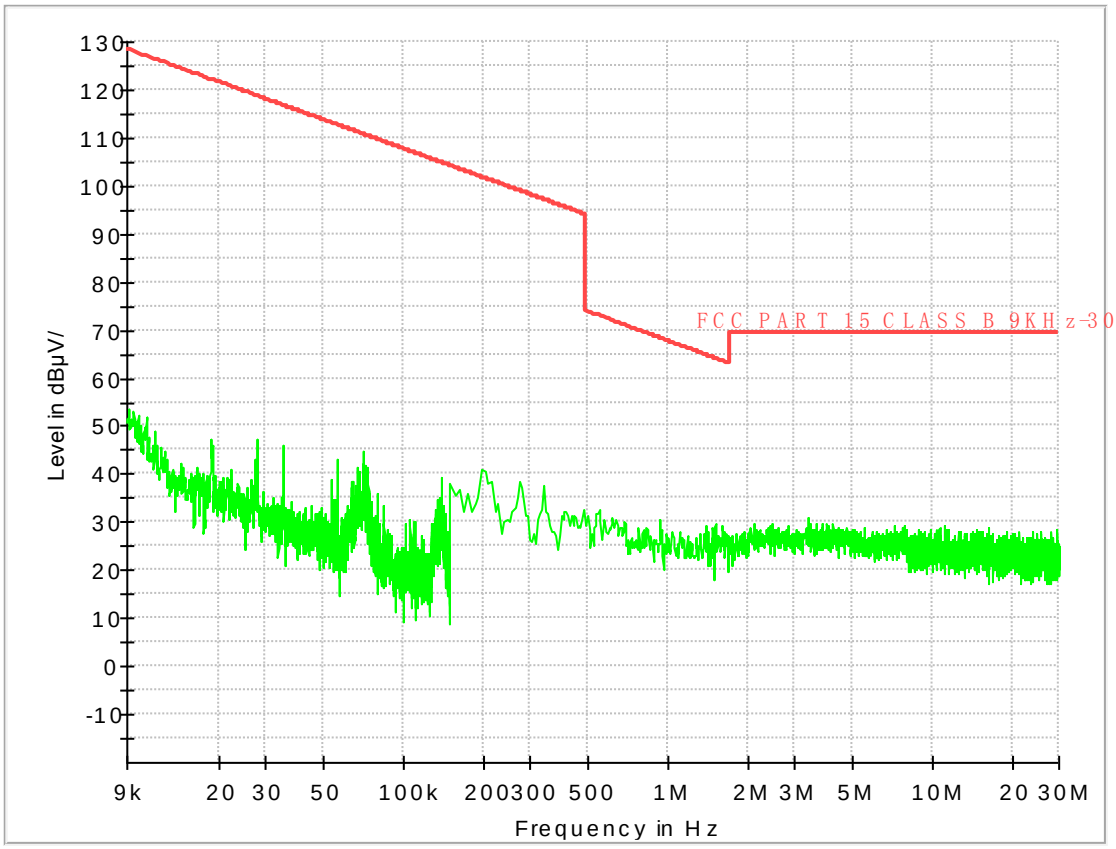


Copy of FCC PART22 WCDMA850_H

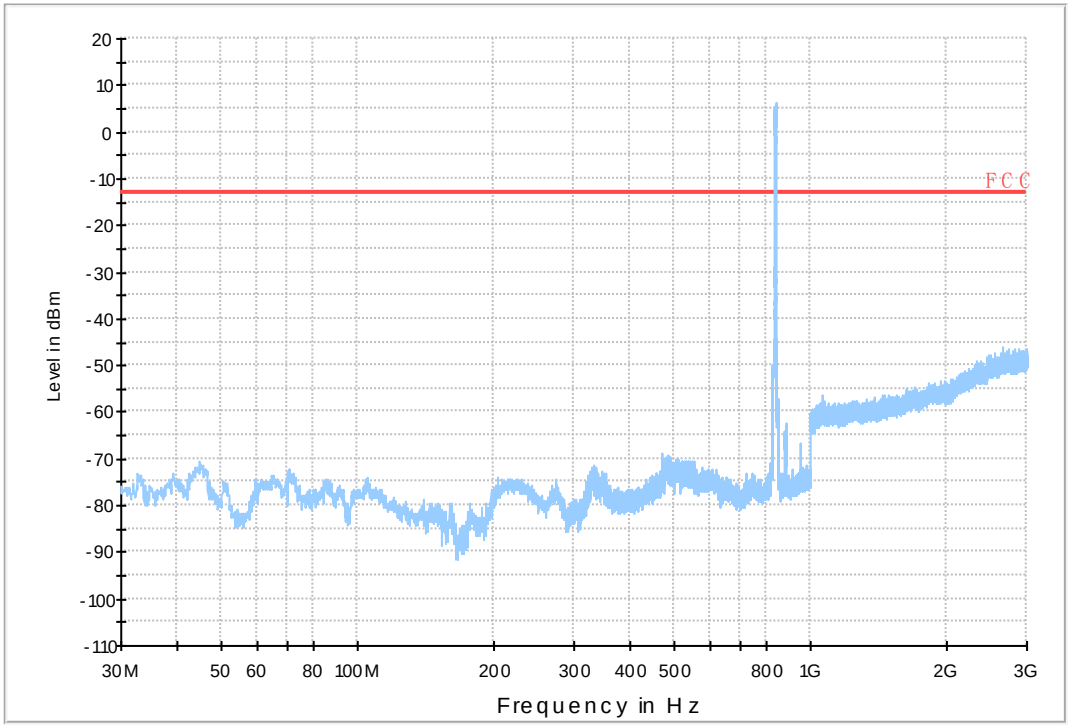


7.1.2 Test Band = WCDMA850_ANT2

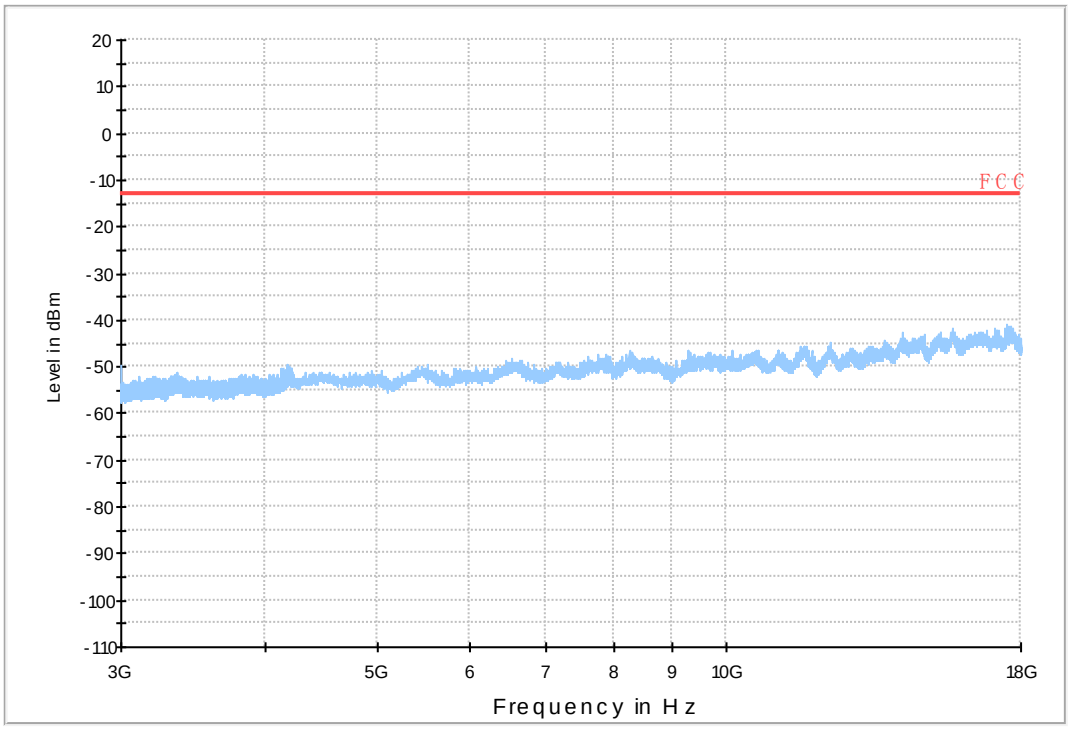
7.1.2.1 Test Mode = UMTS/TM1



Copy of FCC PART22 WCDMA850_L

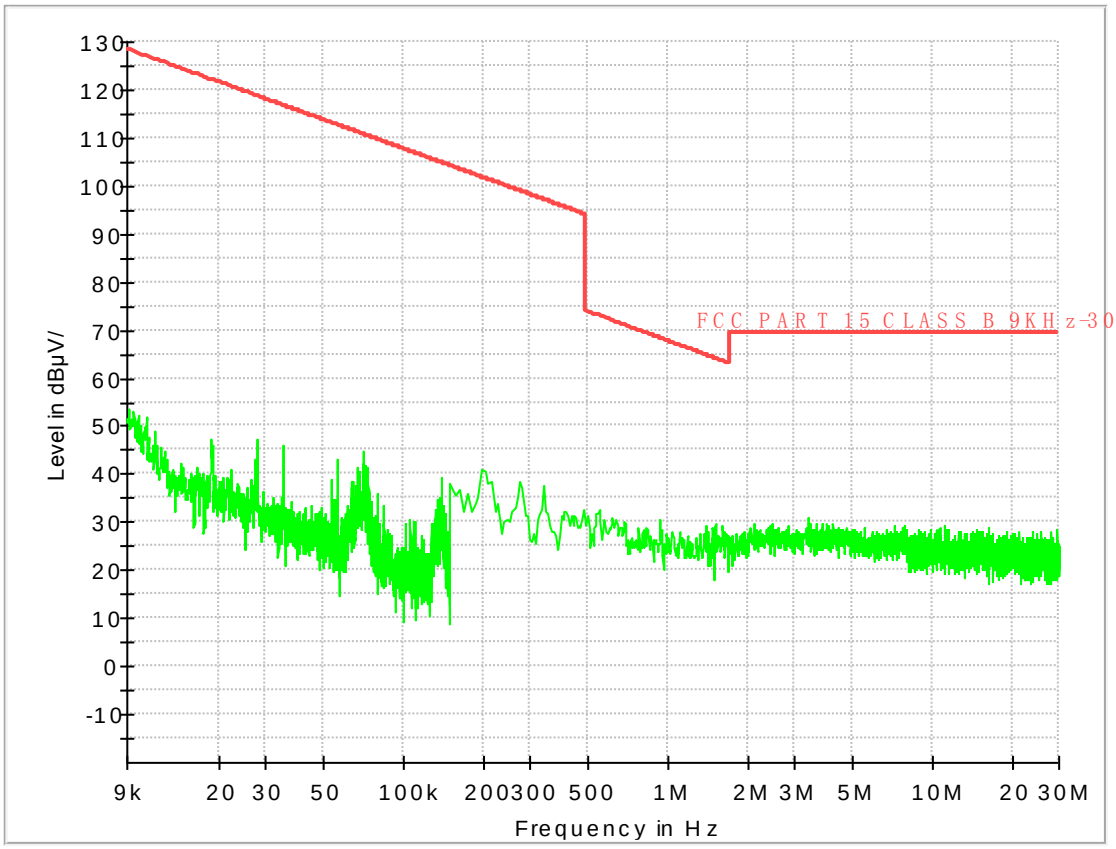


Copy of FCC PART22 WCDMA850_H

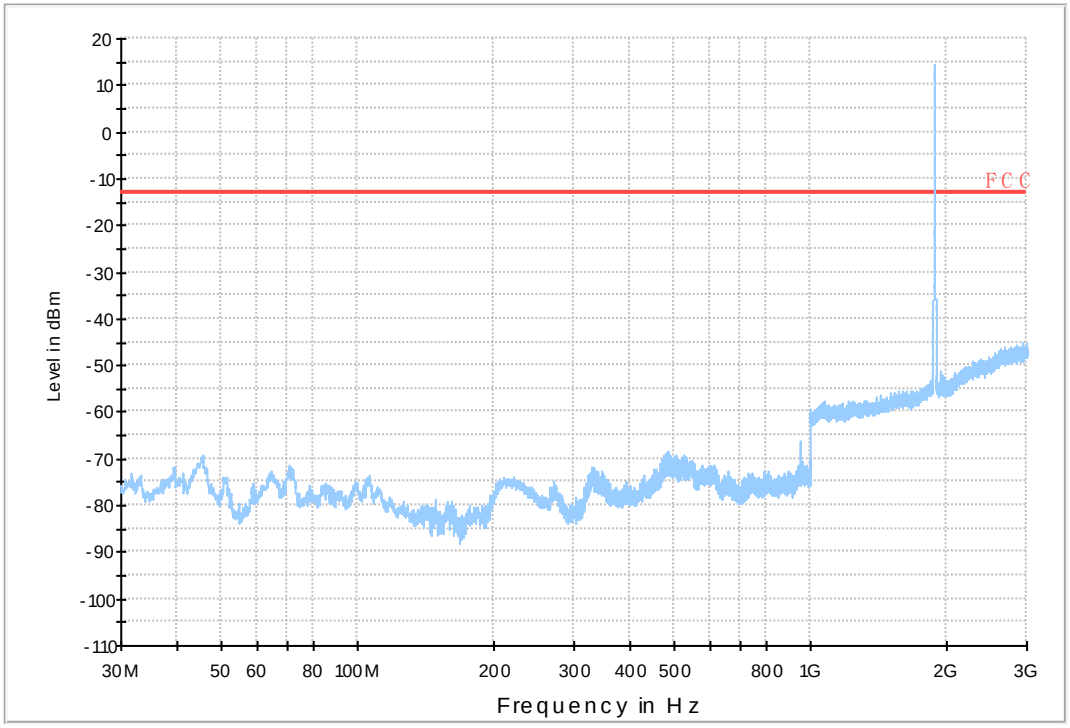


7.1.3 Test Band = WCDMA1900_ANT1

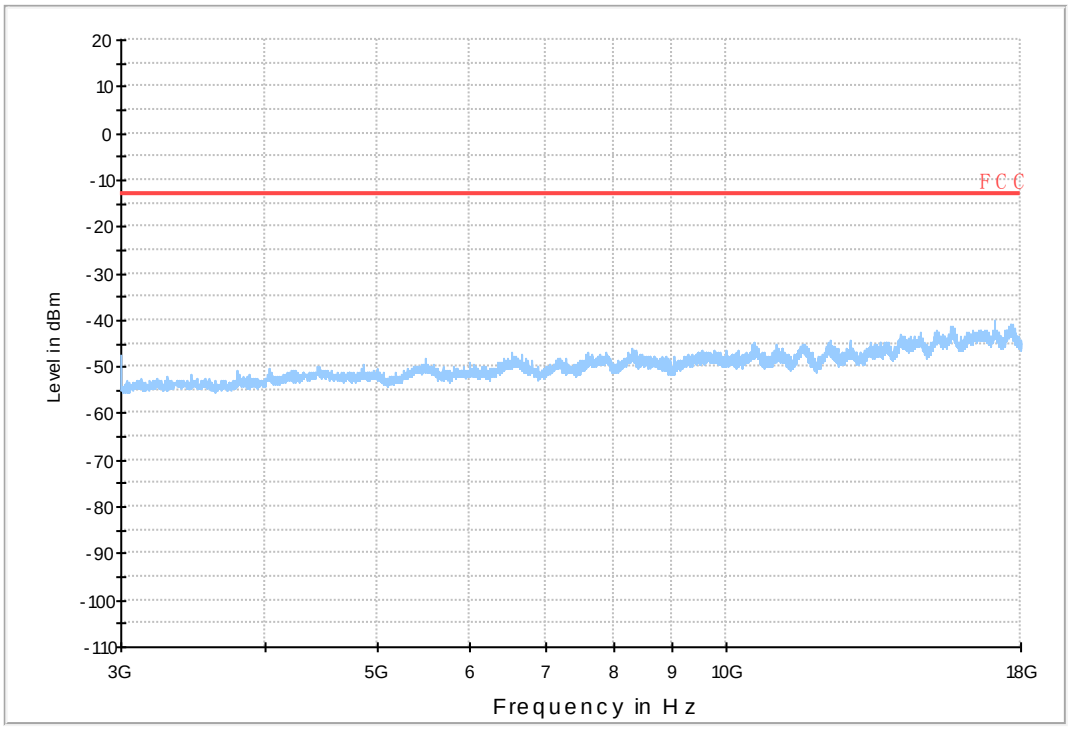
7.1.3.1 Test Mode = UMTS/TM1



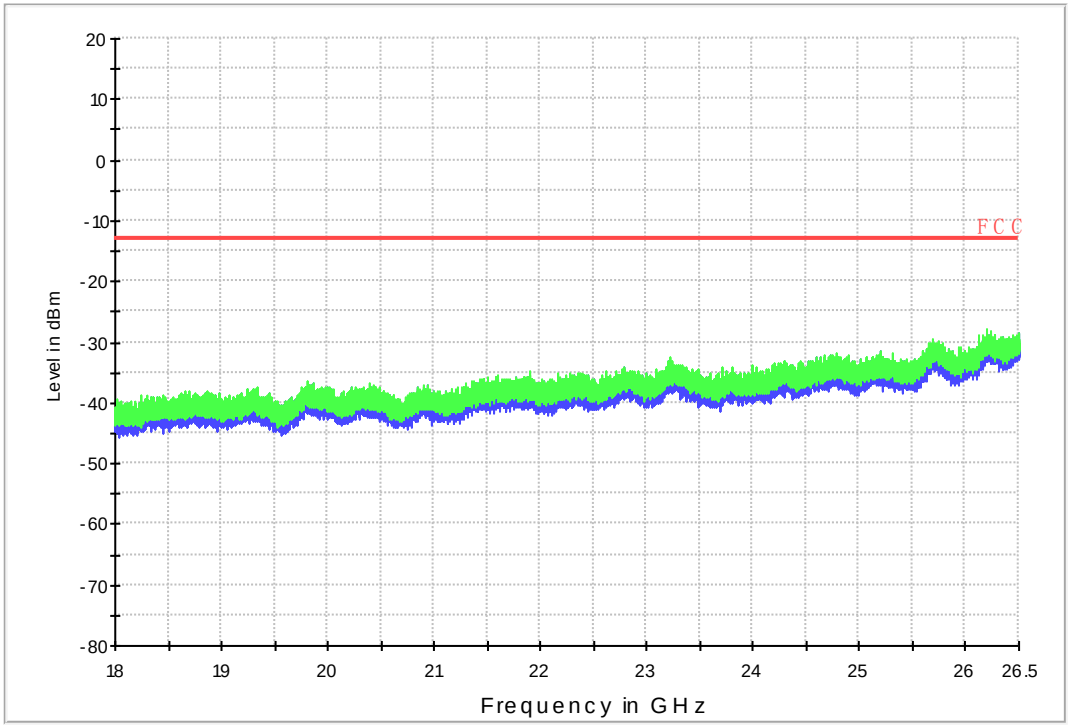
Copy of FCC PART24 WCDMA1900_L



Copy of FCC PART24 WCDMA1900_H

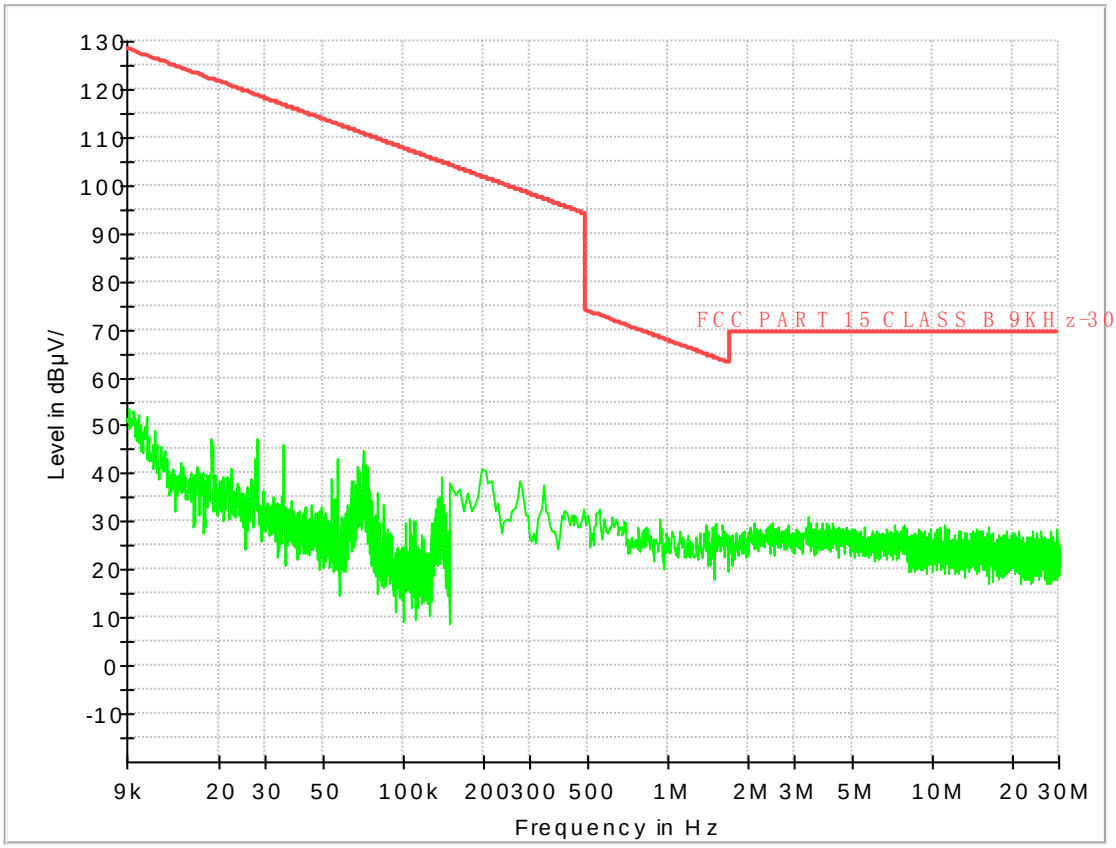


18G~26.5G RSE-TX-DIRECTOR ABOVE 1.5G PK

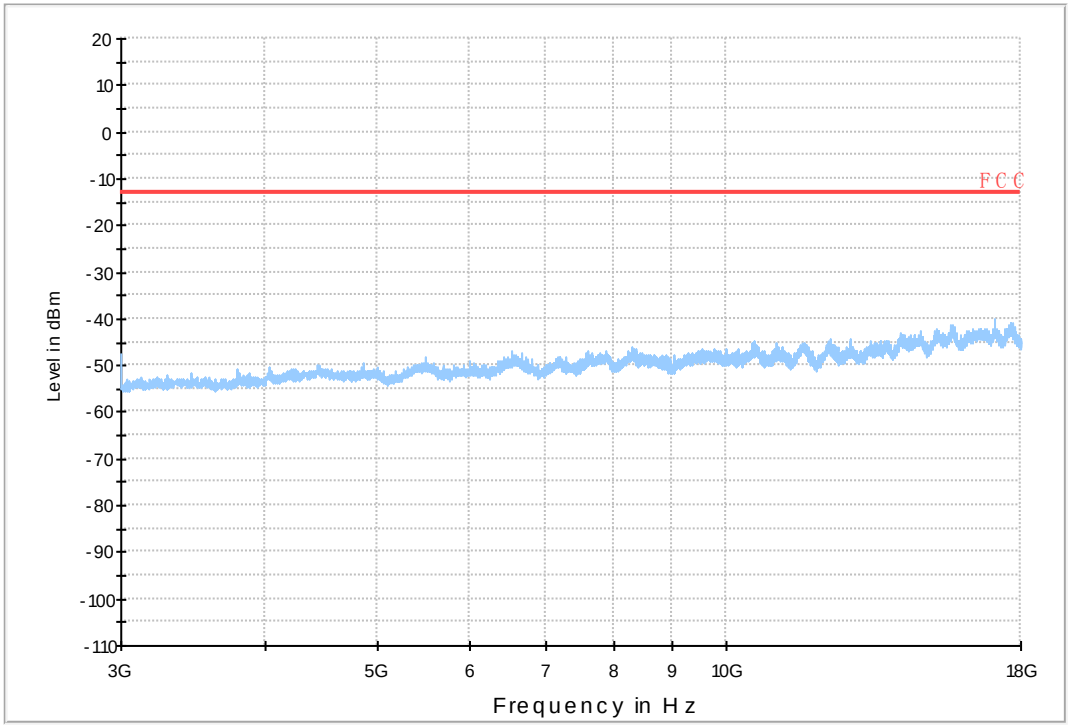


7.1.4 Test Band = WCDMA1900_ANT2

7.1.4.1 Test Mode = UMTS/TM1



Copy of FCC PART24 WCDMA1900_H



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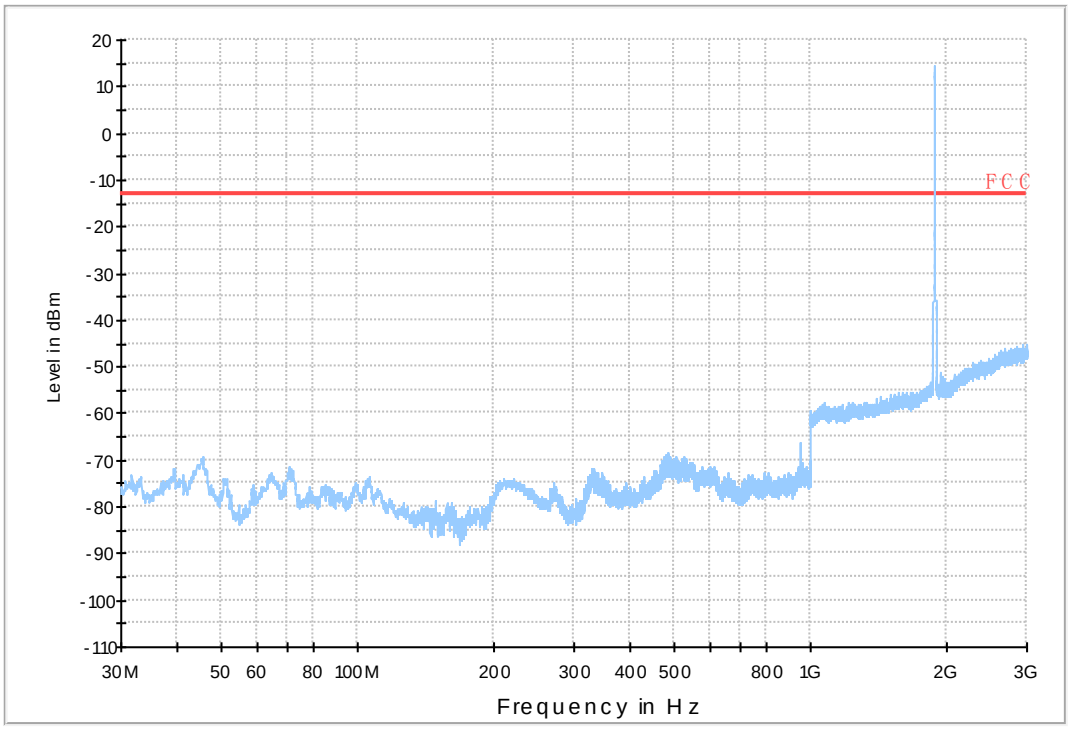
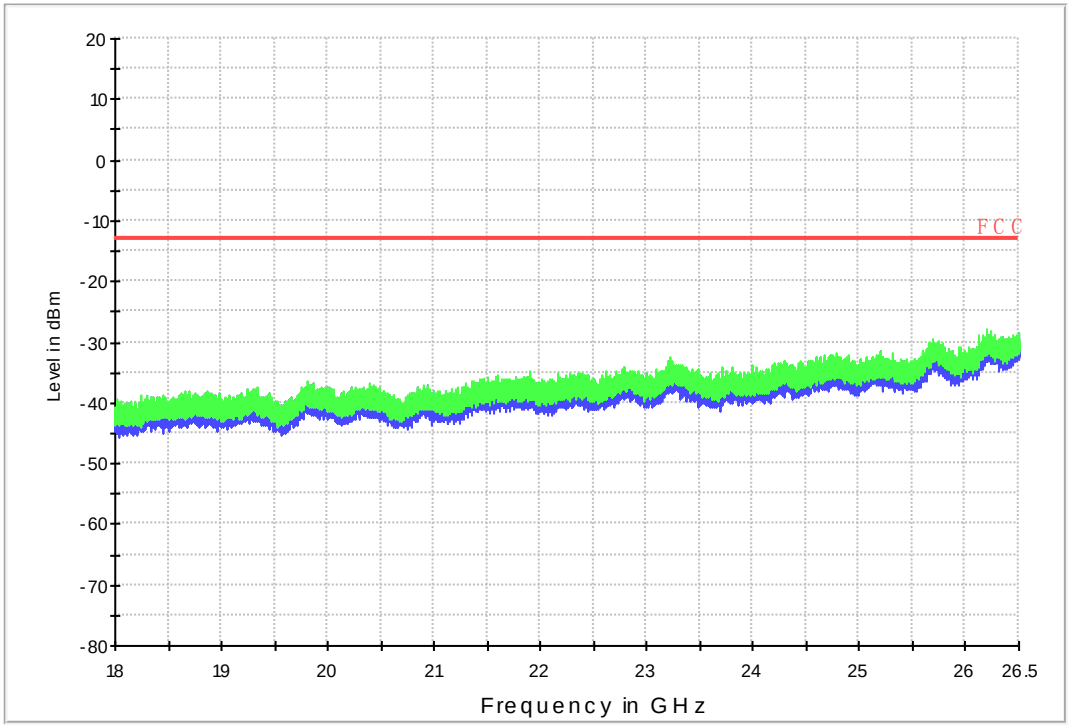
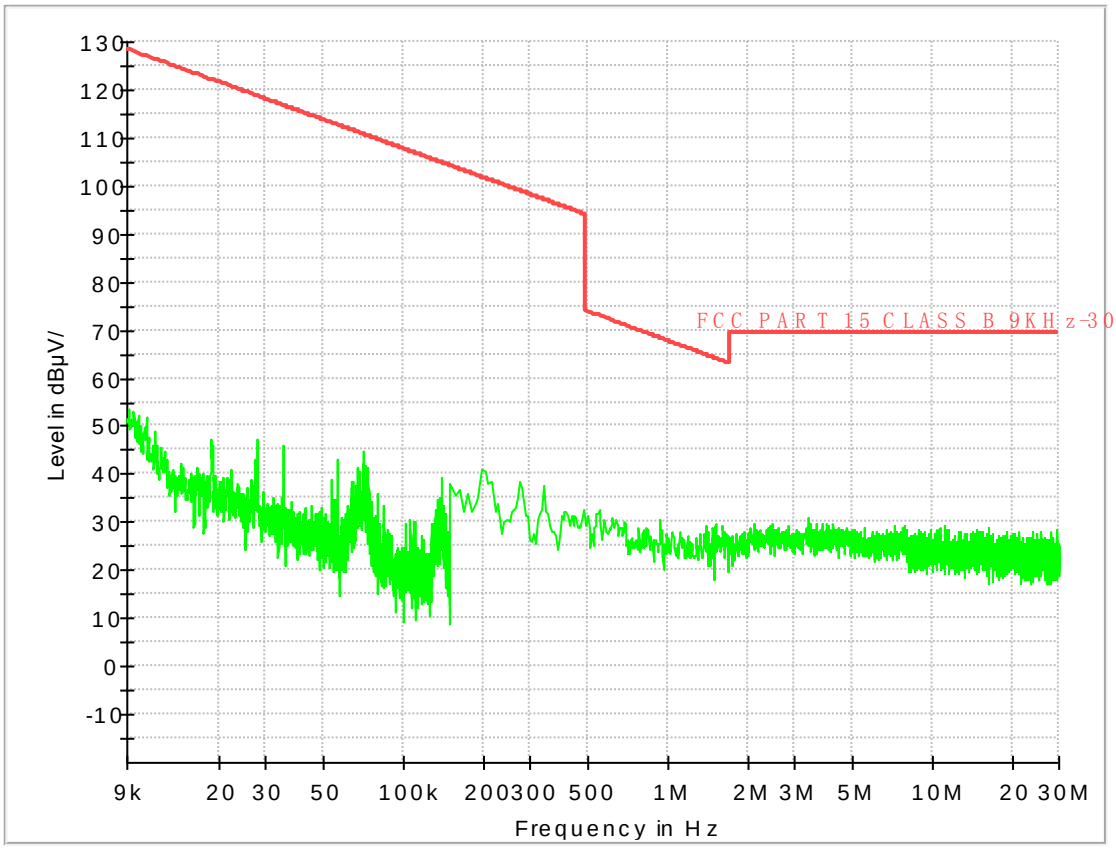


18G~26.5G RSE-TX-DIRECTOR ABOVE 1.5G PK



7.1.5 Test Band = WCDMA1700_ANT1

7.1.5.1 Test Mode = UMTS/TM1



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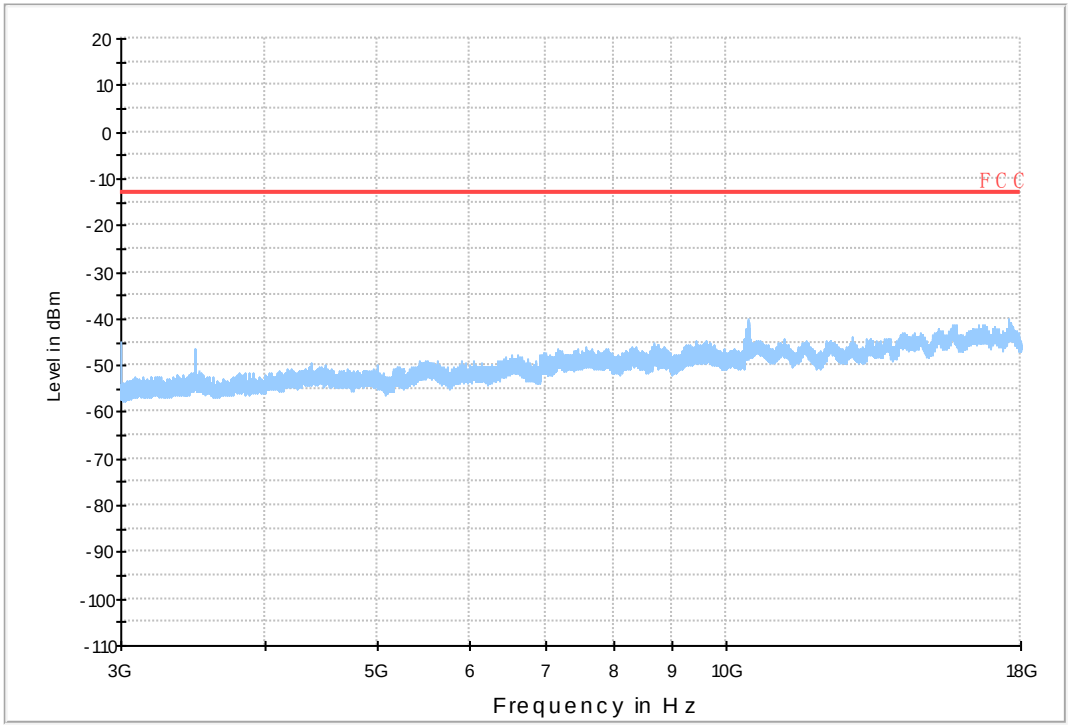

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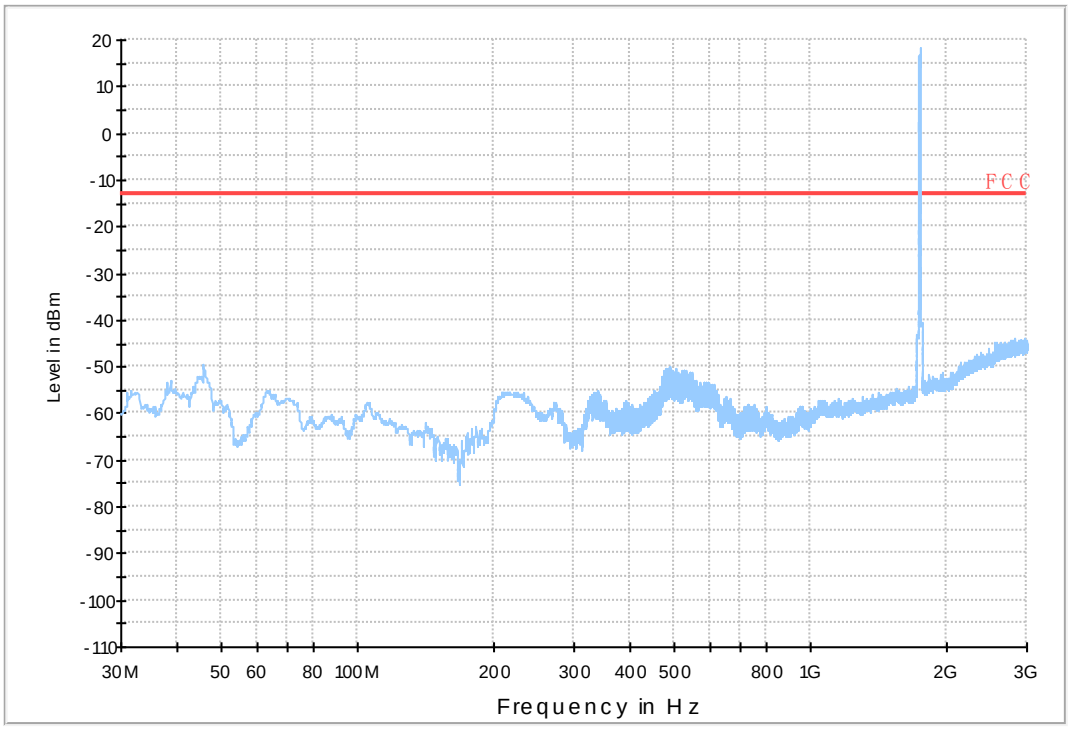
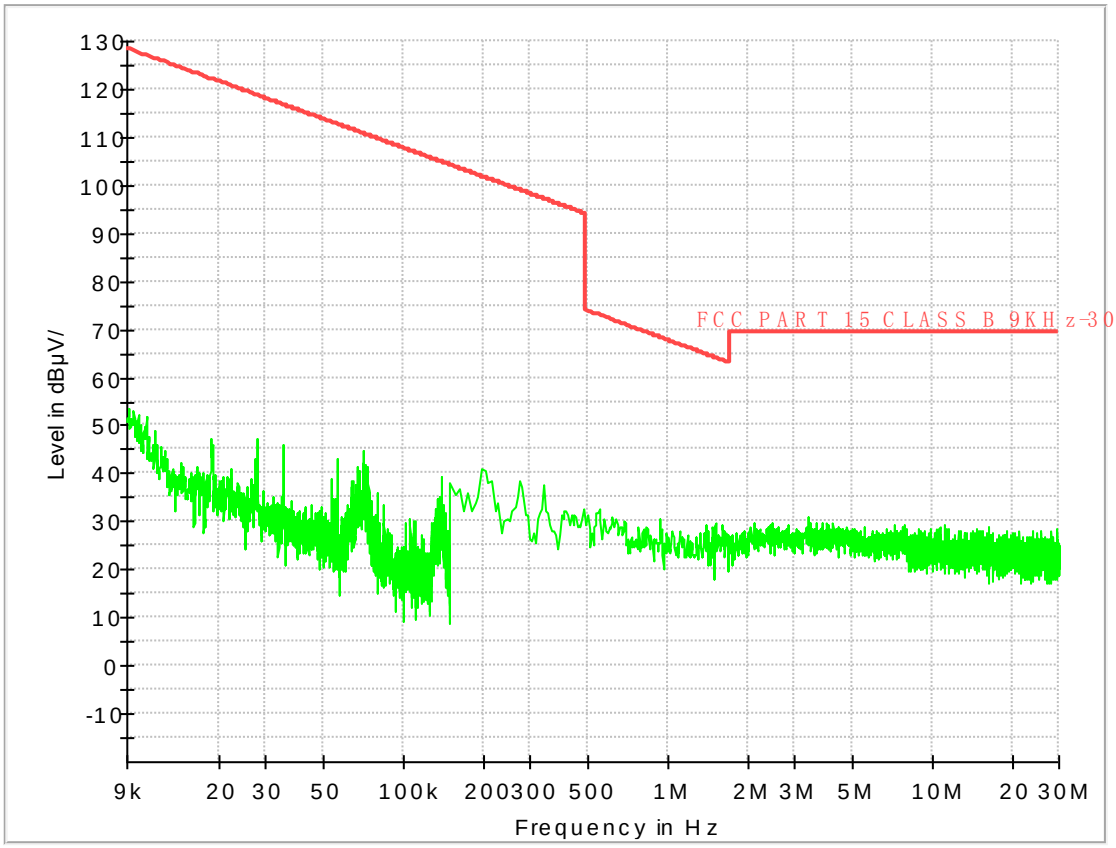


7.1.6 Test Band = WCDMA1700_ANT2

7.1.6.1 Test Mode = UMTS/TM1



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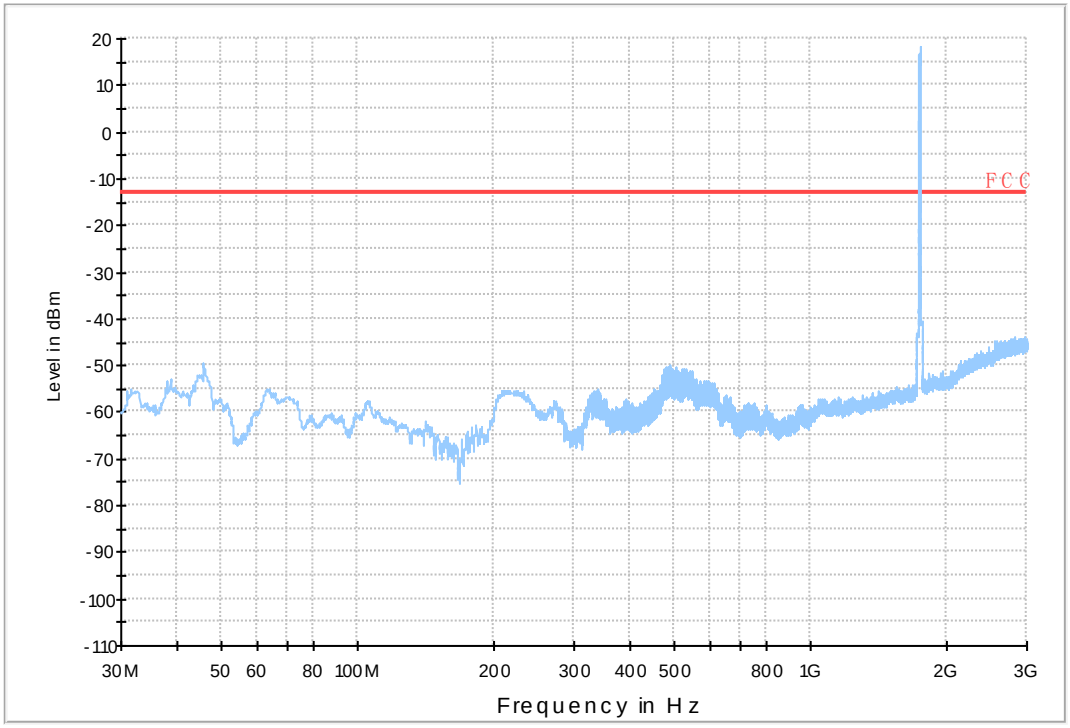

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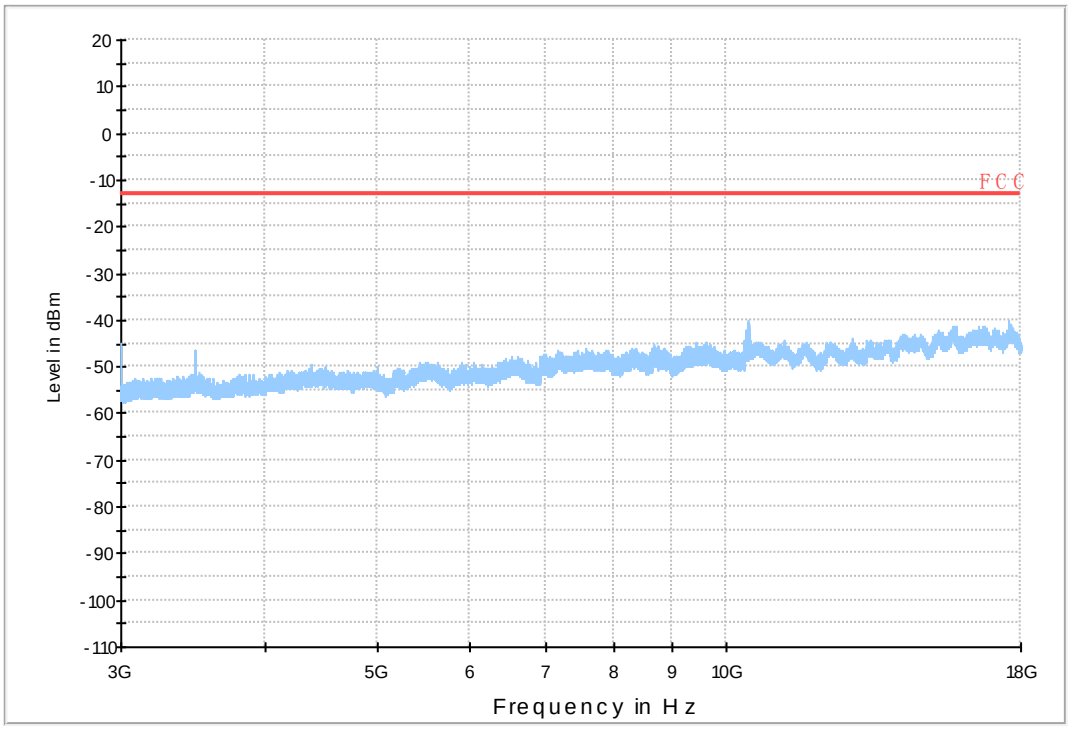

8Appendix_H: Frequency Stability

8.1 For UMTS

8.1.1Frequency Error vs. Voltage:

Test Band	Test Mode	Test Channel	Test Temp.	Test Volt.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
WCDMA850	UMTS/TM1	LCH	TN	VL	12.88	0.01559	PASS
				VN	8.82	0.01067	PASS
				VH	-0.24	-0.00029	PASS
		MCH	TN	VL	3.42	0.00409	PASS
				VN	14.14	0.01691	PASS
				VH	7.20	0.00861	PASS
		HCH	TN	VL	6.04	0.00713	PASS
				VN	8.36	0.00987	PASS
				VH	12.59	0.01487	PASS
WCDMA1900	UMTS/TM1	LCH	TN	VL	10.71	0.00578	PASS
				VN	8.03	0.00433	PASS
				VH	12.33	0.00666	PASS
		MCH	TN	VL	10.60	0.00564	PASS
				VN	13.44	0.00715	PASS
				VH	15.43	0.00821	PASS
		HCH	TN	VL	11.72	0.00614	PASS
				VN	6.47	0.00339	PASS
				VH	8.47	0.00444	PASS
WCDMA1700	UMTS/TM1	LCH	TN	VL	7.60	0.00444	PASS
				VN	12.70	0.00742	PASS
				VH	14.40	0.00841	PASS
		MCH	TN	VL	17.03	0.00983	PASS
				VN	12.97	0.00749	PASS
				VH	15.73	0.00908	PASS
		HCH	TN	VL	16.68	0.00952	PASS
				VN	18.30	0.01044	PASS
				VH	11.61	0.00662	PASS

8.1.2Frequency Error vs. Temperature:

Test Band	Test Temp.	Test Mode	Test Channel	Test Volt.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
WCDMA850	-30	UMTS/TM1	LCH	VN	2.72	0.00329	PASS
			MCH	VN	14.62	0.01748	PASS
			HCH	VN	1.95	0.0023	PASS
	-20	UMTS/TM1	LCH	VN	9.69	0.01173	PASS
			MCH	VN	12.82	0.01533	PASS
			HCH	VN	-0.73	-0.00086	PASS
	-10	UMTS/TM1	LCH	VN	4.88	0.00591	PASS
			MCH	VN	12.02	0.01437	PASS
			HCH	VN	9.83	0.01161	PASS
	0	UMTS/TM1	LCH	VN	10.10	0.01222	PASS
			MCH	VN	9.69	0.01159	PASS
			HCH	VN	11.32	0.01337	PASS
	10	UMTS/TM1	LCH	VN	12.04	0.01457	PASS
			MCH	VN	11.89	0.01422	PASS
			HCH	VN	14.24	0.01682	PASS
	20	UMTS/TM1	LCH	VN	0.27	0.00033	PASS
			MCH	VN	14.51	0.01735	PASS
			HCH	VN	9.57	0.0113	PASS
	30	UMTS/TM1	LCH	VN	16.27	0.01969	PASS
			MCH	VN	5.92	0.00708	PASS
			HCH	VN	11.51	0.0136	PASS
	40	UMTS/TM1	LCH	VN	2.81	0.0034	PASS
			MCH	VN	12.21	0.0146	PASS
			HCH	VN	8.27	0.00977	PASS
	50	UMTS/TM1	LCH	VN	2.33	0.00282	PASS
			MCH	VN	10.62	0.0127	PASS
			HCH	VN	12.62	0.01491	PASS
WCDMA1900	-30	UMTS/TM1	LCH	VN	10.51	0.00567	PASS
			MCH	VN	7.40	0.00394	PASS
			HCH	VN	3.04	0.00159	PASS
	-20	UMTS/TM1	LCH	VN	3.66	0.00198	PASS
			MCH	VN	11.05	0.00588	PASS
			HCH	VN	2.09	0.0011	PASS
	-10	UMTS/TM1	LCH	VN	4.47	0.00241	PASS
			MCH	VN	9.70	0.00516	PASS
			HCH	VN	12.92	0.00677	PASS
	0	UMTS/TM1	LCH	VN	11.34	0.00612	PASS

			MCH	VN	9.22	0.0049	PASS
			HCH	VN	5.19	0.00272	PASS
	10	UMTS/TM1	LCH	VN	8.56	0.00462	PASS
			MCH	VN	4.43	0.00236	PASS
			HCH	VN	0.56	0.00029	PASS
	20	UMTS/TM1	LCH	VN	1.85	0.001	PASS
			MCH	VN	11.61	0.00618	PASS
			HCH	VN	14.97	0.00785	PASS
	30	UMTS/TM1	LCH	VN	4.18	0.00226	PASS
			MCH	VN	5.97	0.00318	PASS
			HCH	VN	11.66	0.00611	PASS
	40	UMTS/TM1	LCH	VN	3.81	0.00206	PASS
			MCH	VN	9.32	0.00496	PASS
			HCH	VN	10.89	0.00571	PASS
	50	UMTS/TM1	LCH	VN	3.10	0.00167	PASS
			MCH	VN	6.68	0.00355	PASS
			HCH	VN	8.42	0.00441	PASS
WCDMA1700	-30	UMTS/TM1	LCH	VN	7.83	0.00457	PASS
			MCH	VN	18.77	0.01083	PASS
			HCH	VN	17.99	0.01026	PASS
	-20	UMTS/TM1	LCH	VN	7.51	0.00439	PASS
			MCH	VN	16.45	0.00949	PASS
			HCH	VN	4.91	0.0028	PASS
	-10	UMTS/TM1	LCH	VN	19.50	0.01139	PASS
			MCH	VN	10.67	0.00616	PASS
			HCH	VN	16.04	0.00915	PASS
	0	UMTS/TM1	LCH	VN	15.73	0.00919	PASS
			MCH	VN	13.73	0.00792	PASS
			HCH	VN	11.00	0.00628	PASS
	10	UMTS/TM1	LCH	VN	9.92	0.00579	PASS
			MCH	VN	14.39	0.00831	PASS
			HCH	VN	20.61	0.01176	PASS
	20	UMTS/TM1	LCH	VN	8.59	0.00502	PASS
			MCH	VN	16.37	0.00945	PASS
			HCH	VN	12.94	0.00738	PASS
	30	UMTS/TM1	LCH	VN	8.16	0.00477	PASS
			MCH	VN	13.53	0.00781	PASS
			HCH	VN	15.90	0.00907	PASS
	40	UMTS/TM1	LCH	VN	17.01	0.00993	PASS
			MCH	VN	10.85	0.00626	PASS
			HCH	VN	15.81	0.00902	PASS
	50	UMTS/TM1	LCH	VN	7.68	0.00448	PASS

			MCH	VN	12.54	0.00724	PASS
			HCH	VN	7.10	0.00405	PASS

END